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NOVEMBER 1951
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AIR TRAILS

November
1951
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THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

Editor: Albert L. Lewis. **Technical Editor:** Alexis Dowdyoff. **Editorial Production:** Carl Hoppel. **Art Director:** W. F. Tyler. **Editorial Assistants:** Rose Borella and Rosalba Accardi. **Special Correspondents—Washington:** Kendall K. Hoyt; **West Coast Modeling:** Dick Everett.

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Walter J. McBride, Advertising Mgr., 575 Madison Ave., New York 22; Frank C. Smith, Mid-Western Adv. Mgr., 230 No. Michigan Ave., Chicago 1; West Coast Advertising Representative, Kimball, Menne Co., 1052 W. 6th St., Los Angeles 17, California.

AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail Post Office Dept., Ottawa, Canada, Copyright, 1951, by Street & Smith Publications, Inc. 25c per copy—\$2.50 per year. \$7.50 per year in countries of the Pan-American Union; \$3.50 per year in Canada; \$10.00 per year elsewhere. This issue is Vol. XXXVII, No. 2. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. All submissions must include return postage. Printed in U.S.A.

FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

From the Department of Defense . . . The demands of the Korean war have so gravely depleted the military supply of blood plasma that a concerted effort to replenish this supply is mandatory. The Secretary of Defense, General Marshall, is calling this serious situation to the attention of the American people, pointing out that quantities of blood being received from civilian sources are today woefully inadequate.

We would like to ask your help in informing the American people, through an early issue of Air Trails, of this grave need, and to ask that renewed efforts be made to contribute whole blood to our Armed Forces.

To assure each soldier, sailor, airman and Marine an adequate reserve of this vital fluid for use when and where he needs it, the Department of Defense has financed the expansion of blood processing laboratories, and asked the Red Cross to collect for the Defense Department nearly three million pints of whole blood, to be processed into more than a million plasma units between July 1, 1951 and July 1, 1952. This means that 270,000 pints per month must be collected during this fiscal year for the Defense Department plasma reserve.

Civilians may contribute their blood through either Red Cross Defense Blood Centers, Red Cross Regional Centers, or cooperating private blood banks, or through the military program if they are civilian employees.

Maj. D. E. Patterson, USAF

More Fuel for F-W Controversy . . . Reading in the correspondence column of Air Trails, I see an argument relating to the Focke-Wulf FW 198. So at long last this discussion has started again!!

I have made quite a study of the German Air Force and I think that I can state quite definitely that there never was an FW 198. As you may know, the German aircraft designation system was worked on the following principle. A batch of numbers were allocated to each particular manufacturer, for example, Junkers had 86, 87, 88, 89, & 90. Now no two manufacturers had the same number and the Arado company had the batch numbers 195, 196, 197, 198, 199, and this includes the 198 which has been associated with the mythical Focke-Wulf design. There was an Arado 198, a photograph of which I enclose, but repeat, there was no FW 198.



Arado Ar 198

Data on the supposed FW 198 was published by several sources including Janes' All the World's Aircraft for 1940, and I know that an American solid kit of this mystery ship was circulated, but all this

material is based on rumor. There just couldn't have been such an aircraft as Arado had the designation, and used it.

Pilot Officer A. P. Bishop,
Nottingham, England

Cartoonist Frieded Reporting . . . As the address indicates, I am now Private William J. Hutchison, one of Uncle Sam's yard-



birds. Am right in the midst of basic training and working hard.

There's no space in the barracks to build or even keep models and I am disappointed—it would be hard to find a better flying site. The surrounding land is really flat and there is little or no wind. Most days are dead calm with temperatures running around 100 degrees.

Am keeping up on AT and enjoying every issue.

Pvt. Wm. J. Hutchison, U.S. 51044282
Co. 1 QMRTC, Fort Lee, Va.

The Engine Life Question . . . I have been enjoying your latest issue of Air Trails when I come across the letter from Bob Putnam concerning the life of a Half-A. In answering his question you stated that, "The average Half-A engine running at 12,000 rpm should last fifteen to twenty hours." I had always understood that the life of such an engine, if properly broken-in and kept clean, would be over one hundred hours.

To back up my statement I will quote from a letter recently received from the K&B Manufacturing Co. concerning the life of their Infant .02: "The life of the Infant as tested here at the factory, will approximate two hundred and thirty hours." This of course was under test conditions, but I believe under normal flying conditions any properly taken care of Half-A should last from one hundred to two hundred hours. What are your opinions? I would also like to hear from some of the many AT readers on this subject.

Kenneth A. Wilson,
P. O. Box 91, Panama, N. Y.
(Continued on page 9)

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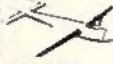
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
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


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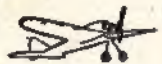
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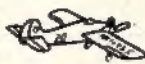


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■ After having skipped 1950 the National Air Races swung into high this year at Detroit's huge Wayne-Major airport. The 1951 show belonged to the military, almost completely obscuring civilian events. In the words of General Hoyt Vandenberg, the military services wanted to demonstrate to the people the full might of the Air Force, and so they did. For the first time in their lives the citizens of U. S. A. had a chance to take a close look at aircraft and equipment they merely read about in newspapers and aviation periodicals, and for the first time they heard the much-heralded "Sonic Boom," the sharp triple explosive sound produced by an airplane diving at sonic speed.

Even such famous races as the Bendix and the Thompson were flown by Air Force pilots in Air Force jets. Static exhibits displayed every kind of AF and Navy aircraft including the B-36, B-45, C-124 Globemaster cargo transport, Fairchild C-120 with detachable pod, jet fighters including Navy's F3D Sky-night, F7U Cutlass, AF's Northrop F-89, liaison planes—as well as tanks, artillery, aircraft engines and equipment. Every service type of plane was represented on the ground and in the air.

An impressive demonstration was given by Col. Paul Tibbets, the man who dropped the first atom bomb, in a Boeing B-47 jet bomber showing Jato take-off, and parachute landing. On each of the two days of the show a North American F-86E Sabre climbed to an altitude of more than 40,000 feet where its pilot put it into a sharp dive groundward, and as he reached the speed of sound the spectators heard three distinctive explosion sounds known as the "Sonic Boom." This thunder is due to the vacuum created behind the airplane, at extremely high speeds, by the air rushing into fuselage, wings and tail surfaces.

Beautiful precision aerobatics by the famous Acrojet team of three

F-80's and one T-33 added to the neck-stiffness of the quarter million crowd. This was followed by a duplicate exhibition of skill and maneuverability by five Royal Canadian Air Force de Havilland Vampires. Navy's F2H Banshee, twin-jet fighter, proved its name in a screaming high-speed climb which carried it beyond perception straight up in a matter of less than two minutes. Effect of an afterburner was demonstrated on a Lockheed F-94B all-weather fighter which took off in a vertical climb ending in a loop. Impressive also were the climbing ability and speed of the large and heavy F-89 Scorpion.

How to extend the range of an assault transport was shown when a Chase C-122 was towed by a Fairchild Packet. As the aerial train sailed passed the grandstands, the Chase's engines were started and the craft was released from the tug, its flight quickly ending with a display of short landing technique. Immediately after landing it took off again using rocket assist. The Navy's reserves, Marines and National Guard flew by in formation; a Republic F-84G refueled from a Boeing KC-97.

Five Air Force jets, two B-45C's, two F-84E's, and one F-86E took off from Edwards Air Force Base at Muroc, Calif. on the morning of the 18th for the 1919 mile Bendix Transcontinental Race. Three hours and twenty-seven minutes later, Col. Keith K. Compton landed his North American Sabre fighter at Detroit, having averaged 555.7 mph. Behind him came two F-84's piloted by Maj. Gilbert Pederson and Col. Emmet Davis. Fourth was Lt. Col. Geo. Thabault in a North American B-45 four-engined bomber.

On the same day, Capt. Omar Reichman flying in an F-86 from Chicago to Detroit covered the 237 miles distance in 20 min. 53 sec. at an average speed of 672 mph. The Allison jet trophy race held on the 19th, from Detroit to Indianapolis, 500 miles, was won by Lt. William D. Baisley at 580.5 mph in an F-84E.

Four Thunderjets started from Indianapolis, but luck ran out on Lt. Col. John W. Lafko whose fighter experienced a flame-out immediately after being airborne. Skimming a lot full of parked cars, Col. Lafko skillfully landed his disabled fighter in a cornfield without injury to himself and very little damage to his craft. One of the first on the scene of accident was Air Trails' artist Cal Smith, who helped the colonel out of the plane.

The most spectacular exhibition of fast flying was witnessed during the Thompson race, which this year consisted of an attempt to break the 100 kilometer (62½ miles) closed-course record of 605.8 mph held until now by the British pilot John D. Derry who flew a de Havilland 108 tailless single-jet experimental airplane. The only entrant in the race was Col. Fred J. Ascani in an F-86E Sabre. In his first attempt on the 18th he (Continued on page 15)

5



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TRAIN IN MIAMI - AIR CAPITAL OF THE WORLD

R / C

Around the modelplane radio-control circuit . . . comment and reports by a leading R-C authority

The '51 Nats. As this is written we are just beginning to recover from the Dallas Nats (probably the hottest National Meet ever held!!) and able to make a few comments on the R/C event. Firstly, there were only 29 entrants and only about 22 of these actually flew. However, weather (for flying purposes, at least) was near perfect, and ships were in the air all the time.

Because of small entry, everyone had chance to fly all he wanted. Flying was of very high grade as shown by the top place point scores. Winners were: 1st, Jim Walker, Portland, Ore., 271 points; 2nd, Howard Bonner, Los Angeles, Calif., 222; 3rd, Bill Butler, Inglewood, Calif., 217; 4th, Wayne Schindler, Los Angeles, Calif., 215; 5th, Wm. Woodall, Thomaston, Ga., 213. There were quite a few others with point totals over 200. Interesting to note that, aside from Walker who flew his single-channel positive-position selector equipment, all others above had rudder only, with escapement; Bonner had, in addition, very successful motor 2-speed. Sorta shows complex equipment isn't needed to place high at the Nats!

Gene Foxworthy deserves big thanks from all concerned. He arrived at Dallas with a neat two-thirds size Hoosier Hotshot all set to gain another leg on R/C Perpetual Trophy. It wasn't to be, though, for A.M.A. drafted him as R/C Contest Director and he spent the week running the event.

The F.C.C. was very much on hand in the person of Inspector Abbott of Dallas office with a car full of test equipment. All contestants were required to have his okay on their score sheet (given after he had checked ham license and transmitter frequency) before they could fly. All transmitters O.K. as far as we could learn.

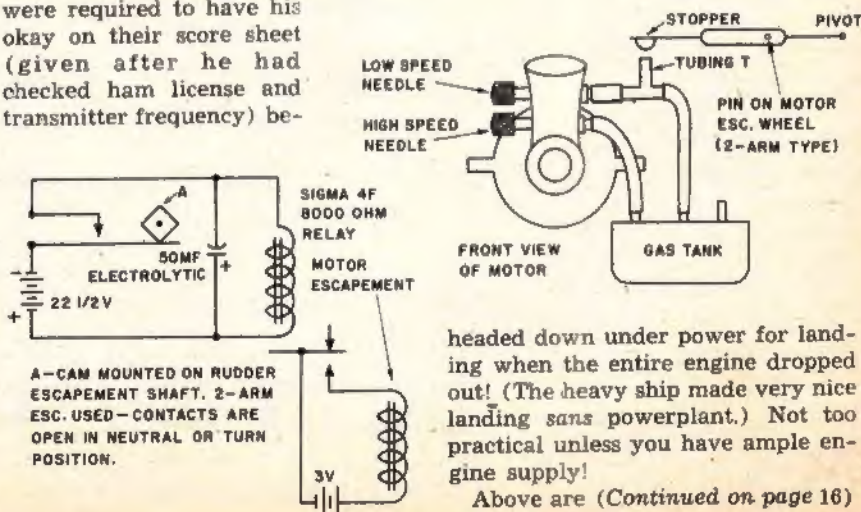
Several servicemen were entered, they have been allowed to fly without ham license at their home bases. F.C.C. allowed them to fly at Dallas provided licensed ham stood by. What good could this ham do? Who knows! But that's the rules interpretation. So you service R/C flyers take the hint—get written permission from base commander and take it to all contests you attend.

Sorry to see very little apparent interest in the Navy bomb-dropping which was won by Clifford Schaible, Roselle Park, N. J. Few flyers came equipped to drop bombs, or even had any bombs. Apparently lots more publicity is needed for this event, and perhaps it should be tried at other meets. At any rate, take it from Jim Schenck who won last year, that all-expenses paid trip (by Navy plane) to, on, and from a Navy Carrier is a thrill he'll remember all his life.

Equipmentwise, this Nats was one of the most interesting in years. There was real variety; lots of Citizens band rigs, audio tone systems, etc. Several flyers had successful motor 2-speed, one of which we'll detail later.

One highlight of R/C event was a long visit by Commander Arthur Godfrey, who was invited to fly Walker's R/C job and got a great kick out of it.

Speaking of Walker—Jim demonstrated what may be his newest scheme for motor cut-off. After a test flight during which he had really wrung the ship out, plane was being



headed down under power for landing when the entire engine dropped out! (The heavy ship made very nice landing sans powerplant.) Not too practical unless you have ample engine supply!

Above are (Continued on page 16)



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It's America's leading stunt plane - contest proven!

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Baby
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A JUNIOR VERSION OF THE NATIONAL STUNT CHAMPION BARNSTORMER

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Wing Span 23 1/2 in.
Wing Area 118 sq. in.
Engine 0.035 to .049 disp.

The ideal stunt ship for 1/2A enthusiasts. Designed and tested by Lou Andrews, the "Baby" will do all the stunt patterns in the book — a real feat for a ship of this size. Wonderfully easy to build because the parts are accurately die-cut and ready for assembly. Recent tests of the Baby Barnstormer have been conducted by a staff member of Model Airplane News and the stunt performance of this ship was warmly endorsed in a feature article in the August issue.

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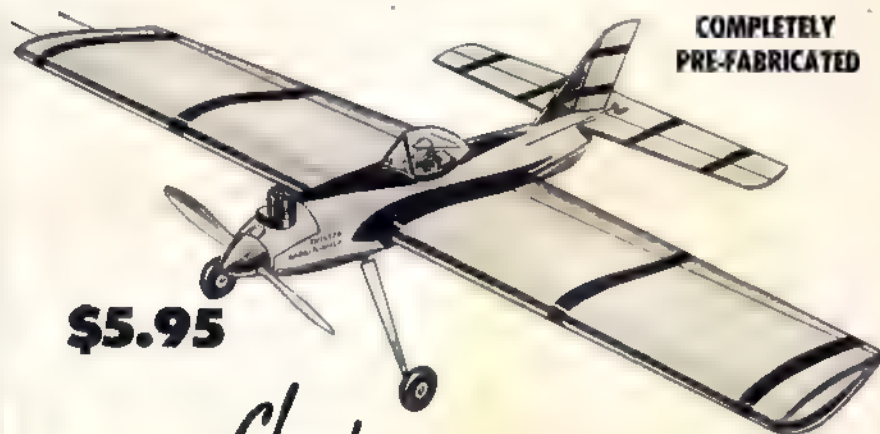
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1950 NATIONAL OPEN STUNT CHAMPION

1948 INTERNATIONAL OPEN STUNT CHAMPION



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\$5.95

Check **THE RECORD!**

1951 NATIONALS

Open event winner 382 points

Senior event winner 389 points

Awarded Jim Walker Trophy

1950 NATIONALS

Open event winner 418 points

Senior event winner 390 points

Awarded Jim Walker Trophy

First in '50 . . . now first in '51

Once again designer Lou Andrews and "Buzz" Ferguson win top honors at the Nationals, thus repeating their outstanding triumph of 1950. Under a broiling Texas sun, the Barnstormer successfully withstood the stern challenge of some of America's top stunt flyers and proved itself a real national champion. To win a national stunt title once is a notable feat — to score again is the mark of a thoroughbred. Now you can be sure that

when you fly a Barnstormer, you fly the best!

The Barnstormer kit includes a full size side view plan and wing layout with large easy to follow assembly illustrations. The heavy duty landing gear wire is ready formed. Hard wood motor mounts, steel wire for push rod, hard metal elevator horn and plate plus ample tissue for covering are also included. Get this sensational kit at your dealer today

BARNSTORMER SPECIFICATIONS

Wing Span 47 in.
Wing area 470 sq. in.
Length 30 3/4 in.

Weight approx. 26 oz.
Speed 60 to 75 M.P.H.
Engine23 to .35 disp.

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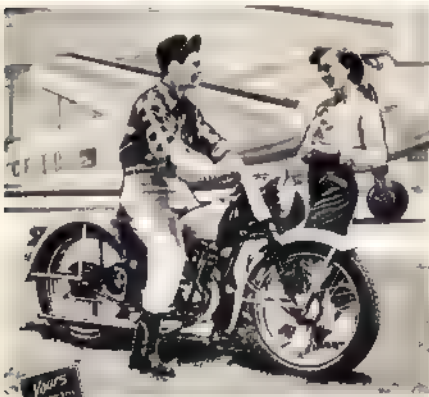


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WITH *Tele-Glide* FORK

It's smarter, more colorful, more advanced than ever! Easier to operate, with improved oil-lubricated Tele-Glide Fork, 3-speed transmission, 2-wheel brakes, dependable lights, big tires, folding foot rests. Smooth, with quiet, peppy motor. Swanky, with 4 new color finishes. And so economical . . . 90 miles and more per gallon, little upkeep, no parking problems. Easy to ride. One lesson and you go anywhere . . . to airfields, parks, resorts, sports events, school, work. Low priced. Try a ride. See your dealer. Mail the coupon today



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air notes

HUGHES' FLYING BOAT may play the role of aerial laboratory for the atom aircraft engine; it is only plane of the size needed to carry this type of powerplant. The government has agreed to permit final development of plane to determine flight characteristics of such a huge craft. . . . **AIR FRANCE** has ordered ten Super Constellation airliners from Lockheed. . . . **IN FIVE YEARS** of development the Convair B-36 bomber's power rose from 18,000 hp of XB-36 to the equivalent of more than 44,000 in the latest model. . . . **LOCKHEED SUPER CONSTELLATION**, when eventually equipped with turbo-prop engines will be capable of spanning the ocean from New York to Paris in 8½ hours.

REQUIREMENTS FOR PRIVATE PILOT'S rating upped by CAA, applicants now must have 15 hours of dual and 25 hours of solo. Cross-country flight must include a landing at least 25 miles from point of departure. . . . **YB-60** will be the swept-back-wing B-36, powered by eight jet engines.

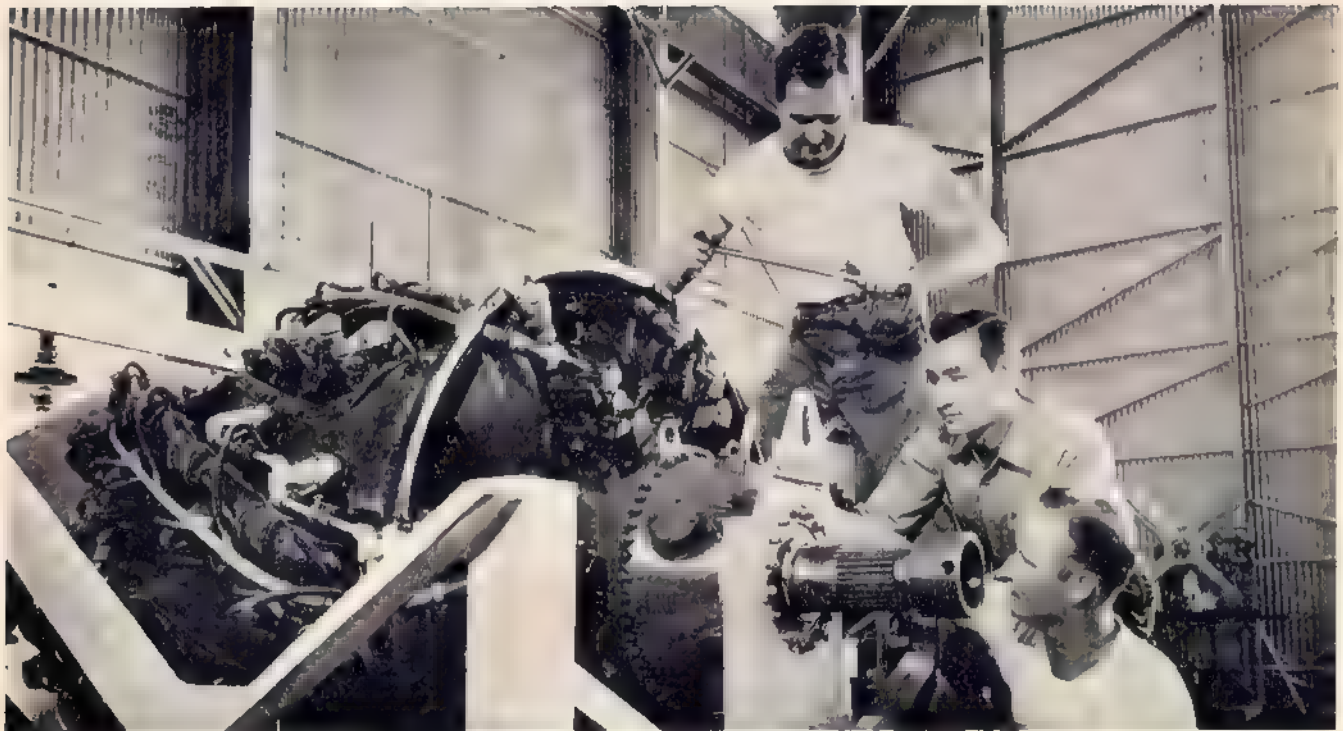
NAVY, which since Oct. 1950 has taken only military personnel for flight training in its Naval Aviation Cadet program, is now accepting civilian applicants. Open to men of ages 18 through 26 who may apply at Naval Air Stations (Air Reserve), Naval Air Reserve Training Units or at any Naval recruiting station. . . . **BELL H-13D** helicopters evacuated 2542 wounded on the Korean front, between January and June 1951. . . . **ROYAL CANADIAN AIR FORCE** has ordered 22 Lockheed T-33 two-place jet trainers. . . . **AMERICAN AIRLINES** has elected Miss Carlene Roberts as Vice-President. She is the first woman in airline industry to hold such an office.

STRANDED SURVIVORS of Kansas flood could not be rescued by an AS-16 Grumman amphibian due to floating debris, so Air Force rushed an SB-29 from Maxwell Field, Ala., equipped with an A-3 airborne lifeboat. The boat was successfully parachuted into flooded field and all survivors were picked up. . . . **BELLANCA AIRCRAFT CORP.**, New Castle, Del., is building fins, rudders and tabs for the **MARTIN P5M-1** Marlin, anti-submarine warfare flying boat.

CHANCE VOUGHT AIRCRAFT has been authorized by Navy Bureau of Aeronautics to manufacture a quantity of F4U Corsair fighter-bombers for French Government under Mutual Defense Assistance Program. . . . **A TALL TALE** in the aviation category was told us in California. It concerns a formation flight of Lockheed F-94s being ferried from the Lockheed plant in Van Nuys to somewhere in Alaska. Over particularly rugged terrain in the Alaskan interior one of the F-94s had the bad grace to experience a flame-out. Its pilot reported the engine failure by radio to the leader and prepared to try a forced landing or bail out—both highly unhealthy in this case. Then a fellow pilot had a brilliant idea. After a short exchange of words pilot number two eased his F-94 up to the disabled fighter and literally stuck the nose of the aircraft into the jet exhaust orifice of the other, pushing the crippled plane to an area where a safe forced landing could be executed.

PILOTLESS BOMBERS using automatic flight and navigation controls, predicted as future aerial warfare weapon by Edward C. Well, vice-president in charge of engineering, Boeing Airplane Co. . . . **LAMINAR FLOW WING** hitting insects in flight has its smooth surface spoiled by adhering bugs; result is that airflow over wing becomes turbulent. British solved problem on their research aircraft by fitting paper cover over wing, then ripping it off by string once plane reached altitude above low-flying flies and insects. **BRITISH TOW TARGET** shaped like a stubby-wing glider houses two microphones in its fuselage which transmit the sounds of striking shots to control tower on ground where number of hits is thereupon recorded. . . . **AIRLINE INDUSTRY** worried over Pratt & Whitney's decision to cut down production on the R-2800 engine used in Convair, Douglas and Martin airliners. . . . **IGOR SIKORSKY** received the Daniel Guggenheim award for 1951

HOW TO TAME 3000 HORSES

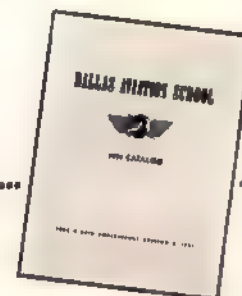


Alert minds and skillful hands are required to produce and maintain aircraft engines like this 3000 horsepower giant . . . one of many "live" engines of all types found in the completely equipped shops of Dallas Aviation School. DAS courses cover every phase of aircraft construction, maintenance and repair and combine on-the-job experience in shops and on the flight line with

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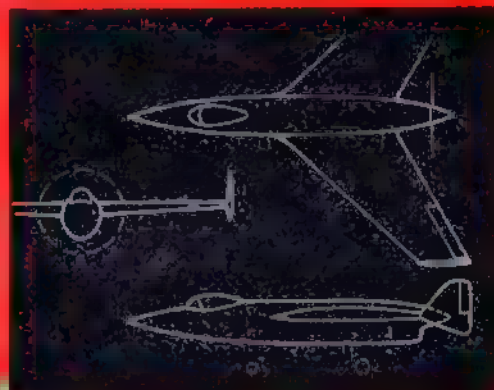
Airmen of Vision

DESIGN COMPETITION

Selected as best design of month, this carrier-based fighter by Joe Kempfes of Downey, Ill., follows general shape of Detonne design. Power is supplied by two turbo-jets of 2,000 lbs. thrust each. Also, four solid fuel rockets in tail with total thrust of 40,000 lbs. give additional boost for take-off climb and getaway. Top speed 700 mph.



Racing plane designed to proposed 500 cu. in. displacement for civilian Thompson Trophy race by James D. Stewart, Danville, Ill. 185 hp engine behind pilot drives prop through extension shaft. Air scoops in center provide cooling. Max. speed 300 mph. Span 29 ft. Construction all metal.



A small cargo and shuttle plane by Jerry C. Russell, Hawthorne, Cal. Cargo storage in fuselage at wing root section. Landing is tricycle, main gear retracting into wing. Small turbo-prop similar to the Boeing 502, developing 170 hp. Sharply swept-back wings have span of 31 ft. 9 in.; fuselage length 34 ft. Top speed of 190 mph.



Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8 1/2 x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information of power plant(s) estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and

judges. The designs may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of \$25. Payments of \$5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 43rd St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.

Air Races

(Continued from page 8)

clocked 635.411 mph around the course, but the next day, due to limited visibility and rough air, his speed was cut down to 628 mph. The greater speed of the previous day was officially recognized by the National Aeronautic Association, represented by Charles Logsdon and Roger Wolf Kahn, official timers for the organization, thus giving the United States another speed record.

The main civilian attraction was the Continental Motors Trophy Race for 190 cu. in. displacement midget racing planes. The field this year consisted of 22 planes, with comparatively few newcomers. Most of the old standbys were there to cash in on the \$25,000 purse offered by Continental Motors, sponsors of the race. The race itself was divided into five events, consisting of three elimination heats of 10 laps each, one consolation of 12 laps and the final event of 15 laps. The course was two and a half miles long, presenting good possibilities for high speeds on the straightaway.

Speed possibilities were aptly demonstrated on Friday, August 17th during qualification trials, when John Paul Jones of Van Nuys, Calif., flying the gorgeous-looking super-sleek No. 16 Shoestring established a new speed record of 199.7 mph. Close second was Steve Wittman of Oshkosh, Wis. with a speed of 193.3 mph. Wittman's right-hand man, Bill Brennan, stepped out of his faithful Buster this year and was flying a Pitts-built midget, No. 8, nicknamed Li'l Monster. His place in Buster was occupied by Robert Porter. Brennan qualified third best at 190.9 mph.

Tony LeVier's Cosmic Winds—Minnow, Little Toni and Ballerina—as well as the Foss Special, No. 94, Ginny, were entered by their new owner, Pacific Air Race, Inc. of Van Nuys, Calif. No. 94

was considerably modified, having acquired a broader and shorter wing, and was renamed Little Mike. The modification added at least 20 mph to its original speed. Newcomers were Paul Schaub's Mr. Zip, a neat green job with plastic moulded fuselage, No. 46, a duplicate of No. 47, Li'l Rebel—both hailing from Tennessee, and a second Long Midget, No. 9, called Mammy, built and owned by Luther Johnson. The latter also owns Dave Long's prototype, No. 67, which he flew, while stunt pilot Kip Mone piloted Mammy.

A very neat job with inverted gull wing was entered by Neal Loving of Detroit. Loving, probably the only Negro midget racing pilot in the world, did a masterful job of designing. Unfortunately, spinner trouble kept him out of the race. He gained considerable respect from racing pilots and officials for his indomitable courage; Loving has artificial legs as the result of a glider crash several years ago, but still flies.

Tough luck also dogged the interesting and radical PAR Special, No. 87, with its buried engine, variable incidence wing and "Mix Master" propeller located on an extension shaft beyond the tail surfaces. Flown by Art Beckington, of St. Louis, the plane suffered a cranky engine which considerably reduced its speed. This year, incidentally, the ship sported an English-made Fairey metal racing propeller and redesigned engine cooling scoops. Another newcomer was Hank Orlowski's blue No. 74, which hailed from Wallingford, Conn.

First elimination heat was won by Steve Wittman flying his No. 1 Bonzo, with a speed of 193 pm. Second was Bill Falk of Warwick, N. Y. in Rivets at 189.2 mph. In the second heat, Keith Sorensen, flying No. 94, Little Mike, came in first at a speed of 189.8 mph; second-place winner was Bob Downey in No. 4, Minnow, clocking 187.1 mph. Third heat was taken by John Paul Jones in No. 16 with a record speed of 197.4 mph, with Bill Brennan next in

No. 8 at 189.4 mph. Six planes flew in each heat.

The consolation race was actually flown as two-races-in-one, two groups of three planes each taking off at the starting flag's signal. Winner in the first group was Richard Ohm of Rochester, N. Y. in No. 15 at a speed of 177 mph. Kip Mone in No. 9, at 177.5 mph, led the other group.

The final event was the fastest ever flown by midgets in which even the last man bettered the speed of the second-place winner in the 1950 Continental Trophy Race, until now considered a record contest. Winner of the race and the \$4,200 purse was John Paul Jones in No. 16, Shoestring, who averaged 199.2 mph; second place went to Steve Wittman with the speed of 192.1 mph, and third to Keith Sorensen, 187.4 mph.

Sorensen finished the race by the skin of his teeth. As he crossed the finish pylon his engine threw a connecting rod through one of the cylinders and he was obliged to make a forced landing. Luckily, he landed on the runway and brought the ship to rest without a scratch to himself or to Little Mike.

Other civilian events included aerobatics by the Feminine Aerobatic Champion Caro Bayley in her smart little black-and-white Pitts biplane, aerobatics by National Champion Rodney Jocelyn, Bevo Howard in his Buecker Jungmeister, and the Cole Brothers Aerobatic Trio with three Wasp-powered Stearmans. The trio went through their stunting routine with a man standing on the center section of the top wing of each airplane. There was a comedy act by Dave Binns in an ancient Curtiss Junior pusher, and trapeze act by Marilyn Rich, "Original Helicopter Girl," who performed from a hovering helicopter. A mass parachute jump for title of chute champion was executed every day from a flock of lightplanes. The title was won by Robert L. Nolan of Cave Junction, Oregon.

Boys!



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There are 734 separate awards, worth \$65,000—craftsman's tool kits, cash awards up to \$150 each, trips to the Craftsman's Guild National Convention with all your expenses paid, and University Scholarships from \$1,000 to \$4,000.

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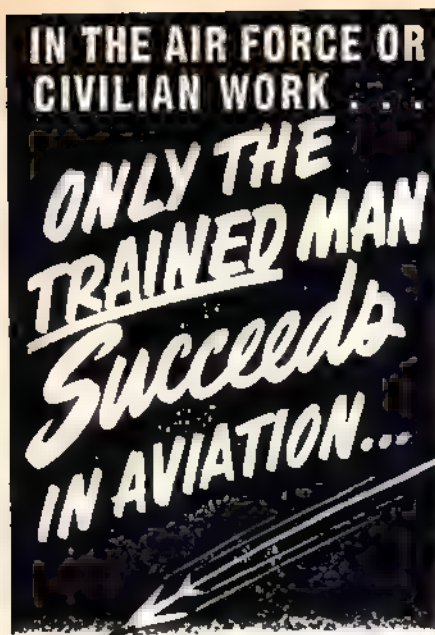
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R/C

(Continued from page 10)

just a few highlights—look for a real story on '51 Nats R/C in a later issue

F. C. C. Note. Many hams don't know it, but F.C.C. accepts R/C flying time as "operating time" when license is up for renewal. Here's good reason to keep your log up to date. You must also include statement you can send and receive code at required rate. This info is official, straight from F.C.C.

Contest Flying. Chicago Plymouth meet had to be postponed due to weather, causing at least two R/C flyers to miss Nats. Finally flown on July 22 (in gale winds). Clay Freese tells us about 13 brave souls flew; first place went to Frank Madl, 120 pts.; 2nd, Al Gregg, 70 pts.; 3rd, C. Freese, 60 pts.

From Jim Schenck comes the news that Nat. Capitol R/C event was not too well attended. This, unfortunately, had been widely billed as just an "R/C Exhibition," was changed only a short time before meet. Schenck was top time man with 13 min; next time was only 4 min. See Oct. column for rules. Jim and Walt Good flew two ships at once. They staged an aerial chase that really wowed the crowd (and almost finished the planes several times!)

Jim also won R/C meet at Dayton. This one was unique in that radio test equipment went to three top winners. Several others got paint sprayers, and engines went to every winner down to and including 7th place. Wow!

R/C Clubs. Walter Harter, 1011 W. Main, Belleville, Ill., will form an R/C club as soon as possible. It will be based at Walter's shop and should soon be going strong as he knows of 10 R/C planes under construction in his area.

Claude McCullough, who had a unique (but untried) R/C ship at Dallas, tells us he and Jack Williams will form Hornets R/C Model Club. Contact Claude at Route 5, Ottumwa, Iowa. There are about seven active R/C modelers now in the area who often fly at Claude's farm. Now there's one farmer we'd like to live near!

West Coasters in Los Angeles-San Diego area are asked to get in touch with Howard Bonner, 1607 S. Bundy Drive, Los Angeles, 25, Calif., on forming R/C club. He knows of at least 27 men with planes flying or on the way.

Technical Notes. Gene Foxworthy and several others who fly with MacNabb Citizenship equipment get much better receiver A battery life from five pencils in series; this will give as much as 35 min. continuous operation. Better life than four med. cells. Change to new bats when voltage gets down to 5. High initial voltage doesn't harm receiver tube.

Several good motor control systems used at Nats. Jack Williams, who had Trammell-type proportional control in his plane, used a double butterfly on motor intake tube. System set into operation by changing pulse rate which actuated a relay through VT rectifier and amplifier.

System used by Bonner worked beautifully with his escapement control. Details are shown in sketches. Cam on escapement shaft closes contacts once for every quarter turn. When rudder esc. is operated at normal speed and frequency, nothing happens. When 4 quick pulses are sent, condenser charges sufficiently to pull in relay for a moment; this operates motor esc. Four pulses (with 2-arm rudder esc.) come so fast plane doesn't alter path, and rudder esc. is back where it started. The motor relay is adjusted with fairly large contact opening—then spring tension is set as needed to operate on 4 pulses. The cam points are set as close as possible, but not so close as to

risk accidental contact. Escapement with a well-fitting shaft is required, sloppy or wobbling shafts won't do.

Motor escapement has rubber stopper at end of spring arm that closes vertical arm of T tube when esc. is in one "neutral," opens it when in opposite "neutral." Lower needle valve is set for regular high-speed motor operation, with stopper open as in drawing. Then stopper is closed, low speed needle adjusted for desired rpm. New holes may have to be drilled for both needle valves, with original holes plugged up. This scheme has been used with success on Ohlsson and K & B engines. It is necessary to experiment with fuel and glow plug combinations to get good low-speed operation. A rather hot fuel is necessary.

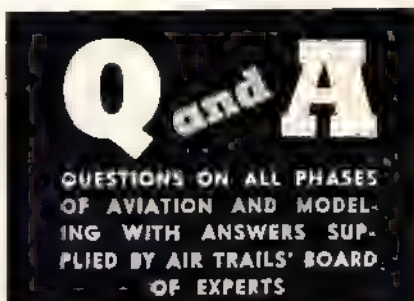
Bonner had motor esc. mounted in plane cabin, with a piece of fuel tubing from T-piece, in to stopper in cabin. Closing stopper, of course, allows fuel to be drawn up and through low-speed needle: this fuel adds to that coming through high speed needle, so rich mixture and slow speed result. With stopper open, low speed needle can't draw fuel.

Commercial Items. West Coast flyers at the Nats. seemed all to be using Bonner 2-arm escapement and swore by it. This is same one we noted here in Sept. issue as available from MacNabb. Howard Bonner makes 'em; he is also official West Coast representative for Citizenship radio line. Address given above.

First up-to-date book on R/C was printed around 1938 by forerunner of present Radio Control Headquarters Box 178, Belmar, N. J. They have just issued new R/C Instruction Manual of 43 pages—lots of dope on tubes, circuits, motor drives for control surfaces, multi-surface operation over on R.F. channel, etc. Price only 50c.

Don't forget to send questions, comments, technical notes, R/C contest and club news to us, attention Air Trails

—HOWARD MC ENTIRE



Avenger Data . . . I would like to know full information about the Avenger TBF-1 such as weights, service in the war, etc.

Stephen Zamoscanyk, New York, N. Y.

● The Grumman TBF Avenger had a wingspan of 54 ft. 2 in., was powered by a 1750 hp Wright R-2600 engine. 2500 were built by Grumman up to December 1943, after which the production of the Avenger was taken over by Eastern Aircraft Division of General Motors and the airplane was redesignated TBM. It was the most important torpedo-carrying plane during World War II and participated in all naval battles. A number are still in use by the Navy and have seen service on the Korean front operating from aircraft carriers.

N.A.C.A. Airfoil Numbers . . . When or from whom can I get a list of N.A.C.A. airfoil numbers?

Donald Bille, Erie, Pennsylvania

● You may obtain a list from the National Advisory Committee for Aeronautics Washington, D. C.

The Dominator . . . I read an article about the B-24 Liberator. Also in this article was mentioned a plane called the Dominator. What type was this and when did it see service?

Bobby Kullen, Centerville, Tenn.

● The Dominator was also known as the B-32, built by Consolidated at about the

same time the B-29 came out. It had a wingspan of 135 ft. and was powered by four engines of the same make as those of the B-28.

Faster Than P-38 . . . Would you please tell me if there were any planes among the nations in W W II (aside from the jets) faster than the Lightning P-38?

Earl Perry, Greenville, Mich.

• Both the North American F-51 and the Republic F-47 were faster than the Lockheed Lightning.

Specifications . . . Was there a Bell Airacuda? If so, what is the data on it? What was the various data on the Grumman Skyrocket?

Don Jacobson, Elkins, W. Va.

• The Bell Airacuda, or YFM-1, was a multi-seat fighter powered by two Allison V-12 liquid-cooled engines developing 1000 hp each, mounted as pushers. The plane was all-metal low wing. Span 70 ft., length 47 ft 3 in. Gross weight 18,000 lbs. Maximum speed 300 mph.

The Grumman Skyrocket, or XF5F, was a twin-engine, Navy experimental fighter, predecessor of the F7F Tigercat. Wingspan was 42 ft., length 28 ft. 6 in. Powered by two 1000 hp radial motors, and capable of speeds around 350 mph.

Helicopter School . . . Will you please inform me as to the nearest point to Lexington, Kentucky, that I can take helicopter pilot training?

Kenneth J. Stull, Bonnyman, Ky.

• The only civilian helicopter school in the U.S.A. that we know of is operated by New England Helicopter Service, Hillgrove, Rhode Island.

Morton Engine . . . I would like to know who makes the Morton 6 cylinder engine I have not seen any ads. I know it is being made in kit form or parts.

Ron B. Miller, Indianapolis, Ind.

• The Morton M-3 model engine is no longer being manufactured

Airline Hostess Training . . . I was very much interested in the article "Airline Hostess," because I have chosen it to be my career. But I don't understand about the schooling I planned to go to business school for six months, then to nurses college for at least two years, maybe more. Does this sound like a very good future to you?

Joan Lackard, Flint, Mich.

• We think your proposed training schedule fits in very well for a career as airline hostess. If you wish to be more certain of this you might check with the various airlines and some of their hostesses at Willow Run Airport.

What Happened? . . . I would like to know what happened to each of the following planes, as they looked like very promising planes last year: XF-85 parasite fighter, XF-87 Curtiss Blackhawk all-weather fighter, B-46, B-48 and the B-49

Tom Rath, Altadena, Calif.

• The Air Force decided not to order these planes.

Navy 3-views . . . What happened to the F-85? Where would you write the Navy for 3-views?

Furman Martin, Lancaster, S. C.

• The McDonnell XF-85 was only an experimental parasite fighter; the project was dropped

For Navy three-views write to Lt. Commander John Burton, United States Navy, Office of Public Relations, Room 4C742, Pentagon, Washington, D. C.

"P" and "F" Designations . . . What is the difference between the P-51 Mustang and the F-51 Mustang?

It has confused me

Douglas Lee, Oahu, Hawaii

• The F-51 Mustang and the P-51 Mustang are the same airplane. Several years ago the Air Force dropped the letter P (pursuit) and adopted the letter F (fighter) for all fighter planes.

Who Builds Navion? . . . My boy friend says the Navion is built by Ryan. I say it is built by North American. Who is right?

Robert Brown, Ontario, Canada

• Your boy friend is right. The Navion has been built by Ryan for several years, though originally it was designed and built by North American, who sold the design to Ryan.



Accent on Opportunity

Until recently Private First Class Myron Jarman of Beverly Hills, California, was a student at Santa Monica City College and U.C.L.A. One day he read of the 45 career fields in the U. S. Air Force training program, and recognized his chance to combine his interests and aptitudes in creating a responsible job for himself.

Soon after enlisting he became a student machinist. In the photo, he is "blanking out a lathe model." Under his instructor, Staff Sergeant Albert D. Clark of Loveland, Colorado, Airman Jarman will learn mechanical drawing, blue print reading, use of small hand tools, lathes, milling machines, contour machines, shapers, heat treating and grinding.

After 21 weeks of school, Myron will be an apprentice machinist. As he advances in experience and ability, his rank and pay will increase. He can find a vital and interesting career in the U. S. Air Force.

You, too, can have this opportunity! You can earn while you learn, in the field where you qualify. Find your place in one of the more than six hundred job specialties in the Airman Career Program. For details visit your nearest U. S. Army and U. S. Air Force Recruiting Station.



U. S. AIR FORCE

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Fighters in Miniature: ARMED AIR GNATS

By R. G. NAUGLE



A new front-line weapon—service lightplanes that bristle with guns, rockets and bombs

■ The Ground Forces want their own Air Force. That, in a nutshell, is what the Army thinks of airpower as applied to the tactical trick of hitting the enemy just a few yards over the front lines. They want their own airplanes, flown by their own pilots to attack the enemy from the air. They want to do this without the aid of the Air Force. They're tired of their small unarmed liaison planes. They want gun-toting fighting flivver planes of the air!

The Army and the Air Force have wrangled over this for some time. When the combat forces of the United States were "unified"—that is, separated after World War II, with the Air Force breaking loose from the Army—the Air Force insisted that they and they alone had the right to buy and fly all aircraft over 2,500 lbs. empty,



In panel below across these two pages are shown possibilities for arming various service lightplanes, with two of them now actually so equipped: the Temco T-35 and the Fletcher Defender, first and last planes on next page.

FRANK TINSLEY



MOONEY MITE

Two cal. .30 machine guns
in wings.
Can be equipped with rockets



CESSNA LC-126

Two cal. .30 machine guns.
Rocket mounts
under wings.



TWIN BONANZA

Two cal. .30 machine guns.
Rocket mounts
under wings.

and all armed aircraft regardless of weight. This immediately limited the Army to small Cub-like liaison planes like the Aeronca L-16, Navion L-17, Cessna L-19 and Piper L-21, with the pilot "armed" with a .45-caliber automatic slung under his shoulder for protection if forced down.

The Ground Forces had to go along with this set-up. They had no choice. They bought their liaison planes with their own dollars (but through the Procurement Division of the Air Force), flew them themselves—and hoped for a break in the future. Since there wasn't much money available during the postwar Johnson economy era, they couldn't afford large aircraft anyway. When the Korean War broke out, however, and their own boys were again ducking shells, they kicked over the traces and insisted on both larger and armed planes capable of dealing deathblows to the enemy when and where he was found without calling in the Air Force for help.

While spotter planes of World War II made a practice of staying over friendly territory, in Korea, "Mosquitoes" — war-weary T-6 Texan trainers — ranged far over enemy lines directing jet and piston-

driven fighter attacks on tanks, artillery pieces, supply dumps, troop concentrations and other targets. The unarmed T-6's bird-dogged Air Force F-80's, F-84's, F-51's and B-26's—or Navy Douglas Skyraiders and F4U Corsairs—on to the targets.

All this takes a time-consuming and complicated air-ground communication system to coordinate the attack. The Ground Forces insist that nine times out of ten it can be done with small armed liaison-type craft equipped with light machine guns, rockets, fragmentation and anti-personnel bombs and Napalm bombs based right behind the front lines and ready to go minutes after the word is given.

Napalm is an especially potent weapon in such cases. This fantastically fiery stuff made of jellied gasoline splashes a scorching, roasting 1500 deg. F. inferno among trees, gun positions and dug-in personnel, burning everything within a hundred-yard radius. It splashes and sticks to everything it touches—and small planes, they insist, can carry the stuff. Bombs composed of this strawberry-colored material can be made up in the field by G.I.'s mixing the magic Napalm powder (sodium palmitate) into ordinary avia-

Modern "Maytag Messerschmitt," unlike WW II predecessor, will have teeth to fight back. Here a Beechcraft Mentor armed with cal. .30 m.g.'s is depicted destroying a Red MiG Utkha liaison plane bent on artillery spotting and recon.



Artist's conception of a "Fighting River" incorporating basic characteristics of Helioplane: high-angle take-off, slow landing speed, flying safety. All parts standardized for "cannibalization." Dual wheels and self-sealing tires for rough-terrain landing. Armament: two cal. .30 demountable package m.g.'s, one cal. .50 firing through hub (possible with engine mounted as in Helioplane, where power to prop is delivered through series of belts from engine mounted below prop shaft). Rockets mounted on V-struts; Napalm bomb carried below fuselage. Armor around engine and cockpit as feasible.



TEMCO T-35

Two cal. .30 machine guns in wings.
Ten rockets under wings.



AERO-COMMANDER

Two cal. .30 machine guns in nose.
Rockets under wings.



FLETCHER DEFENDER

Two cal. .30 machine guns.
Four 5" HVAR rockets under wings.

tion gasoline and funneling it into any handy container.

A small air-driven windmilling fuse arms the bomb as it drops. Its psychological effect alone is tremendous. Truly a fearsome weapon and ideal for small front-line planes able to slip over the lines undetected until the canned hell tumbles down from the skies.

Rockets are a natural for small planes. They're recoil-less (as different from a chattering machine gun which must be solidly mounted to prevent structural damage), they carry a terrific punch and are relatively light in weight. With shaped charges, terrific penetrating power is packed into a relatively small projectile able to knock out tanks and armored vehicles. Rockets on lightplanes aren't new. They were tried experimentally not only during World War II but even in the first World War.

In Italy, during World War II, mechanics at several of the liaison bases rigged up brackets for attaching Bazooka-type rockets to the lift struts of Cubs and L-5's—just to see what would happen. They worked O.K. even with the crude fittings with which they were tried. . . .

But any armed airplane will be an Air Force airplane, said the high brass, and that was that.

A few months ago "unofficial" tests were carried out by the Army at Ft. Sill, Oklahoma, with an L-5 bearing .30-caliber guns and 100 lb. bombs. The results were of such a nature that Ground Force high brass smiled and said go ahead.

Perhaps another reason was reports on Russia's three-place, 110 hp, MiG-8 Utkha (Duck)—a small Canard or "tail-first" liaison plane with pusher propeller and with the horizontal tail attached to the nose of the fuselage. The wings can be removed and the stubby fuselage used as a snow sled or ground vehicle able to reconnoiter by itself. The Utkha is believed to carry small caliber guns and light armor. The Russians seem to be unimpressed with traditional air tactics and are willing to push the small plane to its ultimate capability. The Army wants to do that right now.

Rockets and fire bombs are far more powerful than the solid projectile machine gun bullets and fragmentation bombs of the last war. They weigh much less and therefore can be carried by much smaller airplanes. For example, the (Continued on page 69)

Development.....



In addition to the
Scorpion, all-weather
high-velocity rockets

Northrop F-5H
five-mile



plane, and
by 260 hp Lycoming. Was

Northrop F-5H
five-mile



McDONNELL

..... Highlights

Aircraft Corporation

The Demon, McDonnell Aircraft's newest Navy jet fighter, designated XF3H-1, was recently test flown at St. Louis, Mo. Engine rated at better than 7000 lbs. thrust.

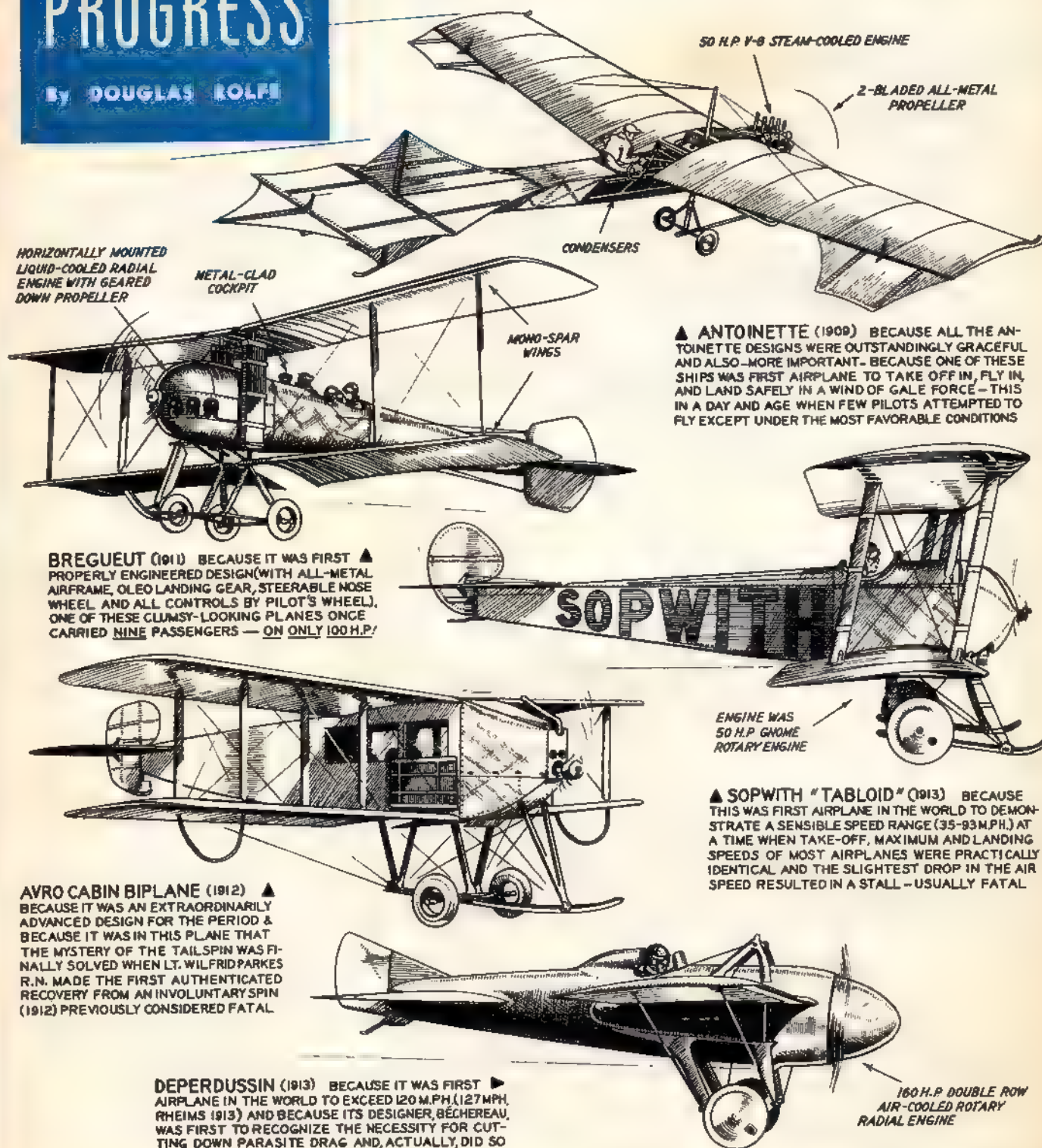
A British experimental jet plane, the Handley-Page 88. It has a special wing of double gull-shape. Powered by Rolls-Royce Nene engine. Note bullet-shape fairing on tail.

Another British airplane, the Vickers Valiant, four-jet bomber. First of its kind built in England. Engines buried in wings give plane an exceptionally clean appearance.

AIR PROGRESS

By DOUGLAS ROLFE

MY FAVORITE "TEN"



▲ **ANTOINETTE (1909)** BECAUSE ALL THE ANTOINETTE DESIGNS WERE OUTSTANDINGLY GRACEFUL AND ALSO—MORE IMPORTANT—BECAUSE ONE OF THESE SHIPS WAS FIRST AIRPLANE TO TAKE OFF IN, FLY IN, AND LAND SAFELY IN A WIND OF GALE FORCE—THIS IN A DAY AND AGE WHEN FEW PILOTS ATTEMPTED TO FLY EXCEPT UNDER THE MOST FAVORABLE CONDITIONS

▲ **BREGUET (1911)** BECAUSE IT WAS FIRST PROPERLY ENGINEERED DESIGN (WITH ALL-METAL AIRFRAME, OLEO LANDING GEAR, STEERABLE NOSE WHEEL AND ALL CONTROLS BY PILOT'S WHEEL). ONE OF THESE CLUMSY-LOOKING PLANES ONCE CARRIED NINE PASSENGERS — ON ONLY 100 H.P.

ENGINE WAS
50 H.P. Gnome
ROTARY ENGINE

▲ **SOPWITH "TABLOID" (1913)** BECAUSE THIS WAS FIRST AIRPLANE IN THE WORLD TO DEMONSTRATE A SENSIBLE SPEED RANGE (35-93 M.P.H.) AT A TIME WHEN TAKE-OFF, MAXIMUM AND LANDING SPEEDS OF MOST AIRPLANES WERE PRACTICALLY IDENTICAL AND THE SLIGHTEST DROP IN THE AIR SPEED RESULTED IN A STALL—USUALLY FATAL

▲ **AVRO CABIN BIPLANE (1912)** BECAUSE IT WAS AN EXTRAORDINARILY ADVANCED DESIGN FOR THE PERIOD & BECAUSE IT WAS IN THIS PLANE THAT THE MYSTERY OF THE TAILSPIN WAS FINALLY SOLVED WHEN LT. WILFRID PARKES R.N. MADE THE FIRST AUTHENTICATED RECOVERY FROM AN INVOLUNTARY SPIN (1912) PREVIOUSLY CONSIDERED FATAL

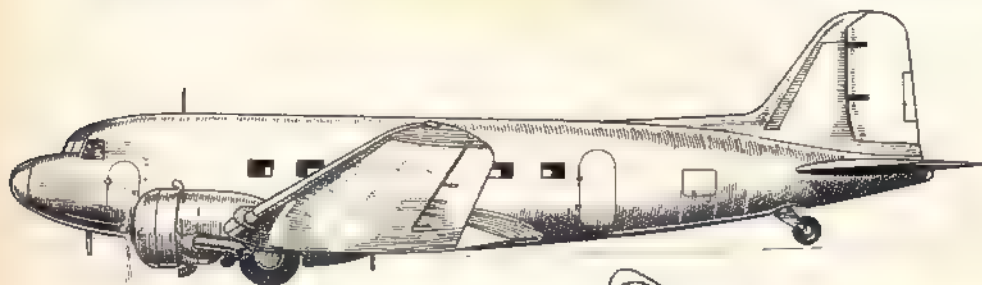
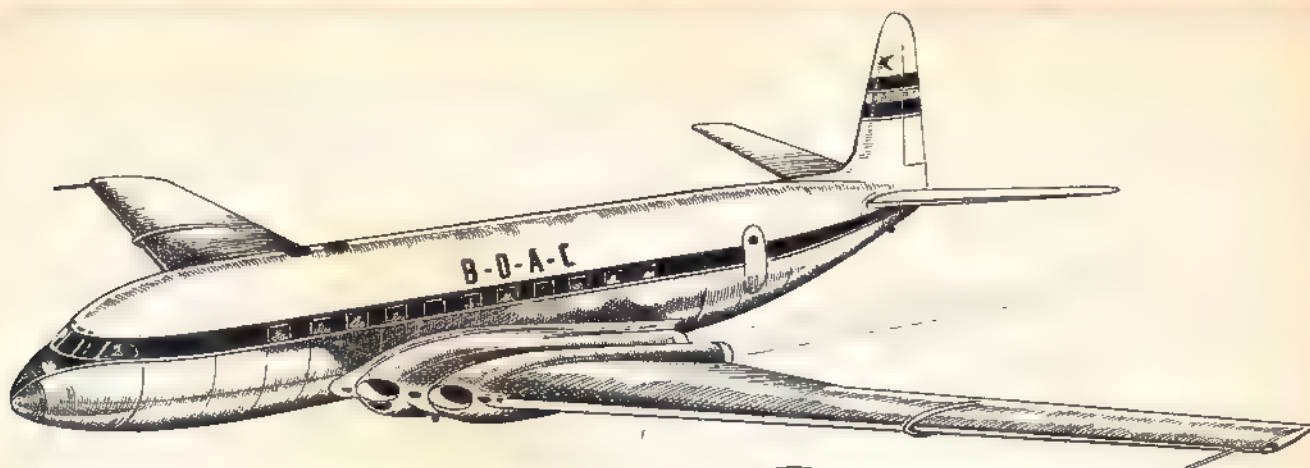
▲ **DEPERDUSSIN (1913)** BECAUSE IT WAS FIRST AIRPLANE IN THE WORLD TO EXCEED 120 M.P.H. (127 M.P.H. RHEIMS 1913) AND BECAUSE ITS DESIGNER, BÉCHEREAU, WAS FIRST TO RECOGNIZE THE NECESSITY FOR CUTTING DOWN PARASITE DRAG AND, ACTUALLY, DID SO

160 H.P. DOUBLE ROW
AIR-COOLED ROTARY
RADIAL ENGINE

"The Editors of Air Trails have suggested I draw up what I consider my ten favorite airplanes. The assorted collection above appears to me to have contributed in some considerable measure to air progress. All represent original designs—and not thinly disguised imitations of other aircraft. The reasons for selecting each is explained. Readers certainly

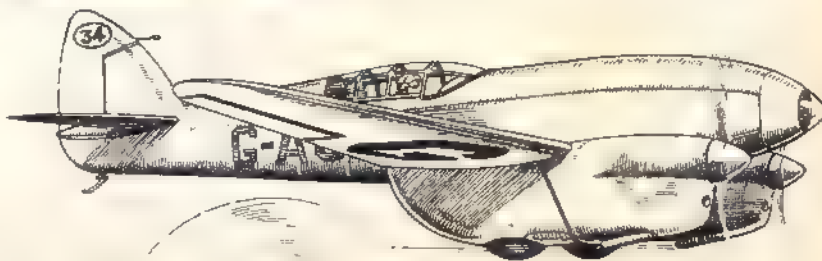
may not agree with the choice; what would you do in making such a selection?—Douglas Rolfe."

Whatever selection you'd make, you'll have to admit that Artist Rolfe has earned the right to say his piece. Born in London, he served with the English forces throughout World War I—his passion for planes resulting in selection of one



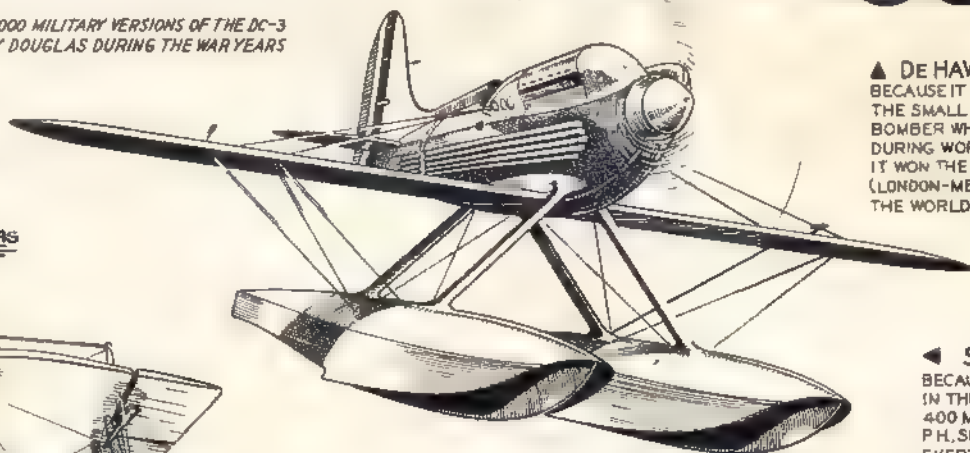
DOUGLAS DC-3 BECAUSE IN PRE-WAR DAYS ▲ IT WAS RESPONSIBLE FOR 93 PER CENT OF ALL U.S. PASSENGER AIRLINE TRAVEL WHILE, DURING THE WAR ITSELF, UNDER VARIOUS DESIGNATIONS (C-47, DAKOTA ETC.) IT EARNED THE NAME 'WORKHORSE OF THE A.R.'—TODAY THIS WONDERFUL AEROPLANE IS STILL IN SERVICE ALL OVER THE WORLD

*MORE THAN 10,000 MILITARY VERSIONS OF THE DC-3 WERE BUILT BY DOUGLAS DURING THE WAR YEARS

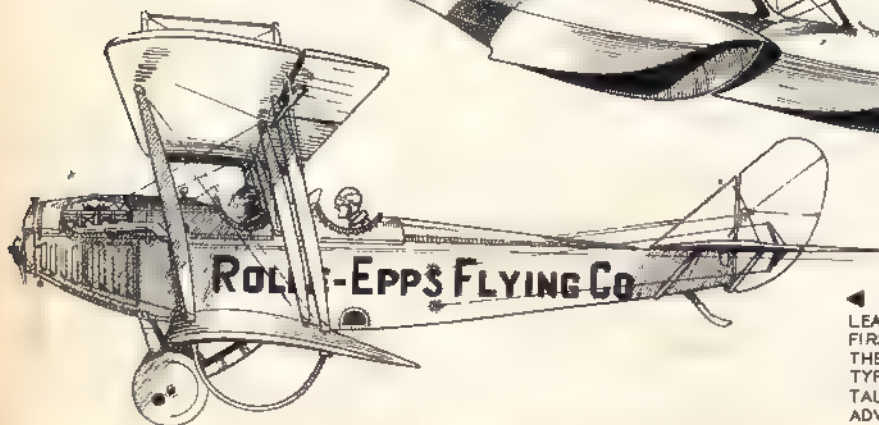


▲ **DE HAVILLAND "COMET" (1934)** BECAUSE IT WAS FIRST APPROACH TO THE SMALL FAST TWIN-MOTOR FIGHTER-BOMBER WHICH CAME TO THE FORE DURING WORLD WAR 2 AND BECAUSE IT WON THE MACROBERTSON RACE (LONDON-MELBOURNE 1934) AGAINST THE WORLD'S BEST PLANES & PILOTS

DOUGLAS
ROLFE



◀ **SUPERMARINE S.6B** BECAUSE IT WAS FIRST AIRPLANE IN THE WORLD TO ARRIVE AT THE 400 M.P.H. SPEED MARK (407.5 M.P.H., SEPT. 1931) AND BECAUSE IT EXERTED A PROFOUND INFLUENCE ON ALL SUBSEQUENT HIGH SPEED PISTON-ENGINE AIRPLANE DESIGN



◀ **CURTIS JN-4D** BECAUSE MORE U.S. PILOTS LEARNED TO FLY, AND MORE U.S. CITIZENS HAD THEIR FIRST AIRPLANE RIDE, IN THE OLD "JENNY" DURING THE PERIOD 1918-1924 THAN IN ANY OTHER SINGLE TYPE OF AEROPLANE—AND FOR PURELY SENTIMENTAL REASONS RELATED TO SOME BARNSTORMING ADVENTURES WITH THESE CRATES MANY MOONS AGO

at the first candidates for gunner-observer training and demobilization with rank of 2nd Lieutenant of the R.A.F. Came to this country after war and barnstormed in South, but leg injury quashed further active flying. Recalling the many identification drawings he did for R.A.F., he swung into aviation art work commercially in 1928. Since then, Squire has

turned out between 20,000 and 30,000 separate plane pictures. As trim, ruddy and 6-foot-plus as when he inked his first Air Progress for us long before World War II, Doug still jumps to the window in his Connecticut studio at the sound of a flying machine overhead. Good habit!

—The Editors.

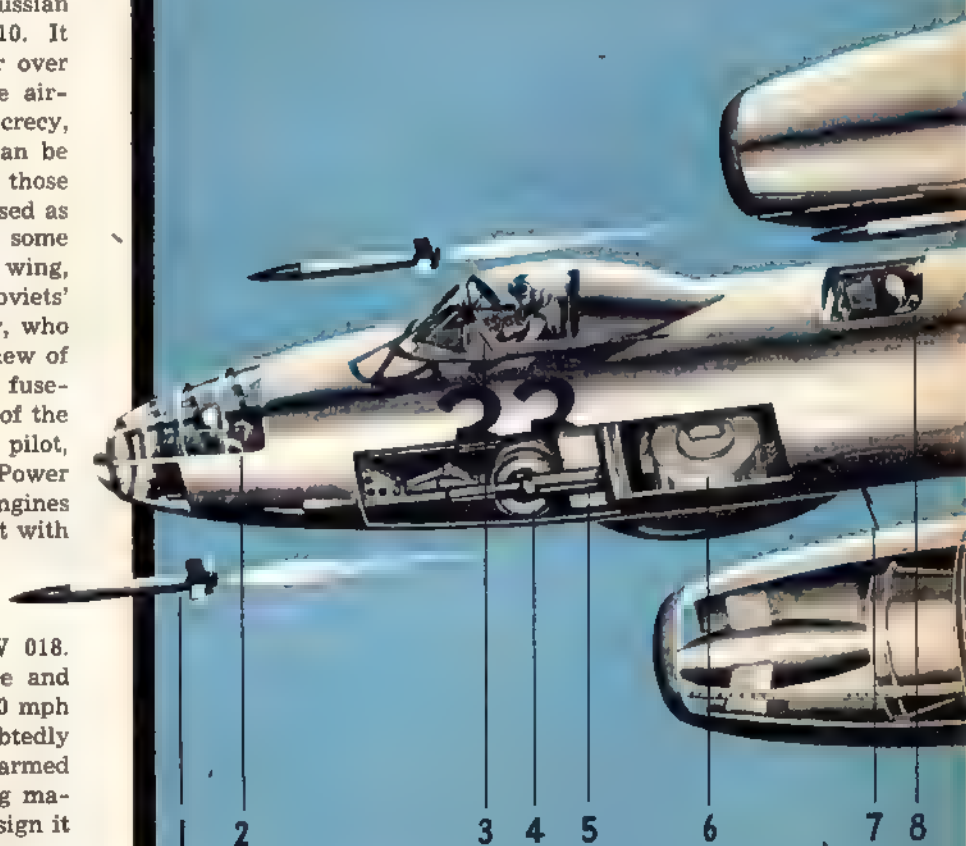
Gospodin Zhigarev's

Tu-10 ATTACK BOMBER

The most comprehensive inside view yet of Russia's latest known tactical bomber—a potential "atomic age Stormovik"

■ The latest known addition acquired by Chief Air Marshal Zhigarev for the Russian air force is the tactical bomber Tu-10. It made its appearance earlier this year over East Berlin. As usual, details of the aircraft are shrouded in Iron Curtain secrecy, but what has leaked out and what can be gleaned from pictures and reports of those who saw the plane fly, it can be assessed as a pretty effective weapon. Spanning some 70 feet from tip to tip of its tapered wing, the Tu-10 is the brainchild of the Soviets' premier designer, Andrei N. Tupolev, who no doubt had more than one casual view of the German Arado 234. The 60-foot fuselage carries a crew of four consisting of the bombardier in the glassed-in nose, pilot, radio-radar operator and tail gunner. Power is supplied by two large M-018 jet engines said to develop over 7500 lbs. of thrust with after-burners. The engines were developed by Russia's outstanding engine expert, A. D. Shvetsov, it is suspected, from the German BMW 018. Judging from the general appearance and power, the Tu-10 should be in the 600 mph class. Its tactical employ will undoubtedly be support of ground troops. As it is armed with rockets as well as forward-firing machine guns, the Russians may even assign it "Stormovik" duties, as a tank destroyer. Large effective flaps reduce considerably the stalling speed, giving the plane quick take-off characteristics and low landing speed, suitable for close-to-front-line operation, an important factor for tactical planes. Known to exist also is a training version of the Tu-10 with solid nose and less powerful engines. The Tu-10 is a formidable airplane and a feather in Gospodin (Mr.) Zhigarev's hat.

And considering the possibility that the bomber's general design as well as its jet engines may not be wholly original with the Russians, that feather may have been plucked directly from the famous Tyrolean headgear of Herr (Mr.) Goering.





1. Air to ground rockets (5" cal. ?)
2. Bomb aimer in Plexiglass nose section.
3. Pilot's cockpit. Armor glass windshield and back armor.
4. Full-swivelling twin-nosewheels retract backwards.
5. One fixed forward-firing heavy caliber cannon (30-37-mm) each side of nose.
6. Radar. (Search, bombing & gun triggering?)
7. Radio antenna.
8. Radio and radar operator.
9. Main undercarriage wheels retract forwards turning through 90° to lie flat in bottom of nacelle.

10. Axial-flow type jet engine with provision for after-burning.
11. Bomb-bay with provision for mixed loads.
12. Rockets carried in racks under wing center-section.
13. Droop-type flaps give comparatively slow landing speed.
14. Large tail bumper fairing.
15. Rear gunner's turret with twin 20-mm or 23-mm cannon in ball type mounting.
16. Swept-back empennage.
17. Main fuel tanks in fuselage mid-section.
18. Three-quarter-span built-in self-sealing fuel tanks.

DeHavilland

The "Nats".

A REAL HOT MEET



With 27 separate events, mostly broken down into Jr., Sr., & Open Classes, the Nationals offered more than 200 awards (above) including trophies, color drawings of Navy planes, the impressive collection of AMA perpetual trophies & PAA cash. National championship honors went to Paul Simon, 18, of Detroit Balsa Bugs whose club also won top group rating. Herold M. Harter, sec. of The National Exchange Club, presents Paul (below) with Exchange Championship trophy.



Majority of models in all events were conventional. One exception was this fine flying wing towline glider by Harry Robertson, Phoenix.



Some PAA-Loaders had insufficient cabin window area, required changing. Not so this super-visibility model flown by Robert R. Osburn, Texas City, Tex.

Dallas (Daddy of PAA-Load) Sherman flew from Tokyo. Cl. A PAA-Load of Roy Benson, Texas City, Texas, gets eye.



■ One of the best run National competitions of all time, the second Dallas championships were long on quality, a bit lower on quantity (630 entries) Distance and that certain element known as the Draft took their tolls High praise went to CD Maurice Teter a top-flight modeler himself, and his hard-working crew of contest officials from the various Exchange Clubs of Dallas

Indoor microfilm flying places figured prominently in determining the national champ, Paul Simon, 18, Detroit, who walked off with top honors and the Senior age group title with 163 points

Gene Jackman from Oklahoma City



"I flung my glider into the air, it came to earth, etc." Ray Good of Chicago gets off a good heave in outdoor event.

Hard-working contest director Maurice Teter of Dallas and crew of Exchangers did fine job. He inspects flying scalars.



R/C runner-up was Howard T. Bonner, Los Angeles. He used Citizen-Ship equipment, plus own devices. Data on his doings scheduled for early "AT" report.



Jim Walker accepts trophy from Capt. H. R. Nieman, CO, Dallas NAS; Jim won R/C, 3rd in R/C bombing.

won Junior title and was pushing Paul closely with 158 points for the overall championship crown. Don Tune, Los Angeles, was Junior runner-up with 139 points. Bob Bienenstein from Detroit with 109 points was Open Class champ. AT's Dick Everett was close on his heels with 104 points; Otto Heithecker was runner-up in the Senior class with 104 points.

Bienenstein, Simon and Heithecker flew for the Detroit Balsa Bugs club. With the help of Steve Benovich and Ronald Nowicki they cinched the club crown with 556 points, 253 more than the next nearest group, that of Oklahoma City.

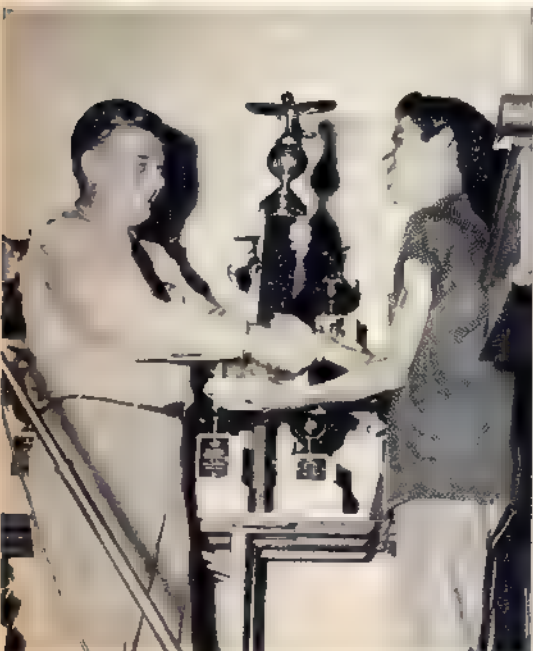
More pictures on next four pages'



Henry ("Pogo Hank") Cole's multi-purpose Half-A job on a take-off. Ship flew as PAA-Load & Clipper Cargo; many free flights did likewise, also ROW'ed.



Top-place 8 1/2 oz. ship, 14 oz. load ship in Clipper Cargo. LaMott Randolph, Dallas, did 40.4 sec.; Wasp.



• Cmdr. Arthur Godfrey, USN, was popular official at meet, judged beauty event. G. Jackman, Okla. City, was Jr. champ.



Competition from south of border! Alberto Vela, Mexico City, gets original design off on 10 min. flight. Mexican entries were very clean.

THE "NATS": A Real Hot Meet



Most popular event at 1951 Nationals was rise-off-water competition for free flight models. Flown as a combined engine class, small jobs proved they could hold their own against B's and C's. Top time went to Dan Lutz, Los Angeles; model did 18:44.4.

■ One good reason for the popularity of ROW flying was the fact that contest officials set it up to take place on a day when there was no other free flight activity. Thus, all the F/F fans could get in semi-leisurely flights and the control line and R/C crowd could drop by for a look-see. Harry (8-Ball Club secretary) McCall of Cleveland ran off the water flying. Fellow 8-Baller "Red" Hilligas handled all other outdoor free flight events on the remaining days of the meet.

As a change from the '50 hydro events which were flown in the face of a stiff breeze, this year's contest had ideal weather. In fact, some contestants were heard to complain because the water was too calm—proving that there is no pleasing a model builder.

Bill Lofland, Abilene, Texas, took Junior hydro with 4:11.8 and Edward (row, row that boat) Mate of the Chicago Aeromats swam off with Senior honors—11:27.0.



As we live and wade—an amphibian! H. C. Coate of Dallas brought this one out. Didn't place, but he deserves a medal for trying something a bit different!



Cooperation is the word in hydro flying. Gary Kirst, Springfield, Mo., fires up. Took 2nd in Senior; total time, 6:44.4.



Lew (Supersonic Sue) Mahieu tries his hand at the dunking contest. Sorry to say, Lew didn't do so good on this attempt—his float dug in and he had to swim.



This one baffled many until they learned it was Frank Ehling's way of worrying competition and just a doggone hoax.

Oops! Stubbed my toe. Ken Tyson drained this one out and went on to win 4th in Jr. From Houston, Tex.

How do you like that for follow-through? Don Tune, L. A., shows how to take a 3rd in junior event. Total time, 2:59.4. Stab floats glued to sub rudders.

How to adjust models and remain cool. An AF entry demonstrates. Navy had boat to retrieve models; some swam.





Here's CPO Abbott's Corsair making qualifying flight off the miniature Navy carrier.



Open Class Champ Bienenstein with his Interstate Cadet rubber scale winner; flew over 9 minutes.

■ Technically speaking the '51 meet was no world beater. However, the quality of the workmanship and the consistency of flying indicated most entrants came better prepared than usual. A great many service men participated; their building time is necessarily limited and they can not always build as many models or in as many categories as they might wish once they don a uniform, since barracks space is at a premium and constant moves dictate small, collapsible craft.

A better deal for the flying caterers is obviously needed. In the rubber division, lightweight sparsely-doped contest-construction types compete against heavily doped and beautifully finished entries. Control line multi-engine men compete against scale stunters scaled down for the competition. Ideas on the subject should be sent to AMA hdqtrs. in Washington.

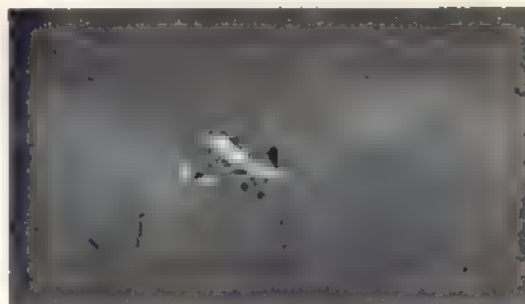
William Fernandez, Englewood Cal., checks timer action on Half-A PAA-Load.



Sparrowhawk scale entry by Orley K. ("OK") Anderson, Corpus Christi, won Tester Beauty-Best Finish.



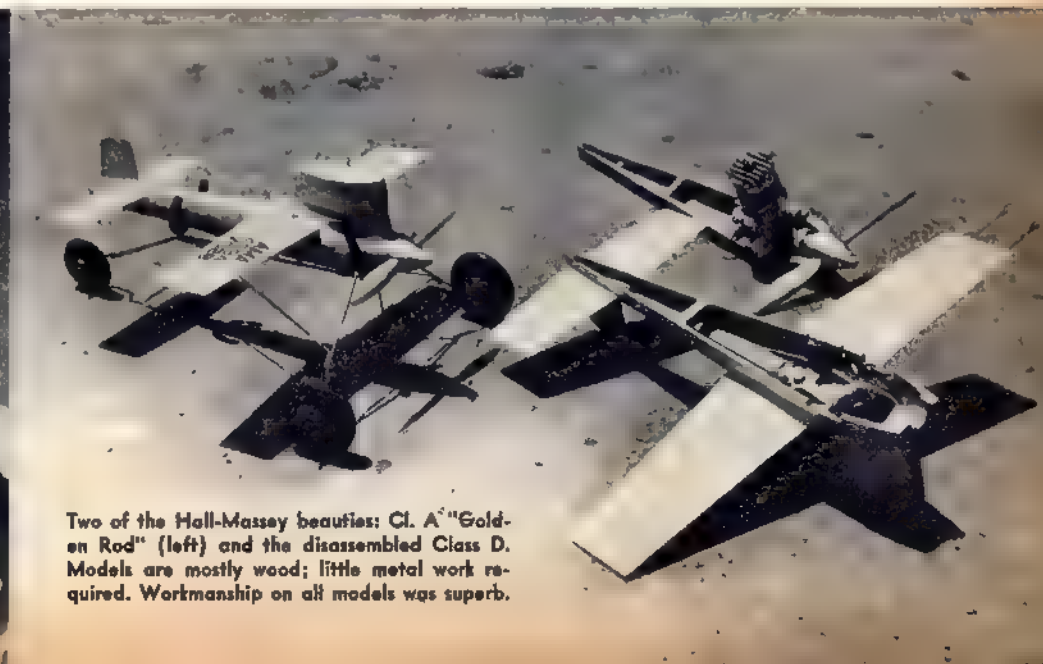
Wayne Schindler, L. A., was fourth in R/C. Here he's h.l.-ing cross wind.



Into the wild blue yonder goes Ed Stall's rubber powered flying scale L-5. Ed, Detroit, was 3rd in Open



Hank Cole cranks up with Oakland Cloud Dusters' specially made wjnder.



Two of the Hall-Massey beauties: Cl. A "Golden Rod" (left) and the disassembled Class D. Models are mostly wood; little metal work required. Workmanship on all models was superb.

THE "NATS": A Real Hot Meet



Sal Taibi, the old free flight master, Long Beach, Cal., gets his C.I. A winner off to a 10-min. flight. Model had metal engine mount with spinner ring.



A member of top-place Championship club, the Detroit Balsa Bugs, was winner of Berkeley Novice Award, Otto Heithecker, runner-up to Senior age champ (and Nat. Champ) Paul Simon, also of BB's.



Western writer Dick Everett (left) looks happy as he collects PAA-Load & Clipper Cargo cash from PAA's George Gardner. Ted Grzeszczak, N. J., center.



One of the best-looking stunt entries was this semi-scale Stuka by Don Still, Alta Loma, Texas. Model is scheduled to appear in AT in plan form shortly.



This was crashing finish to Navy's carrier event! Bob Lutker, Ft. Worth, took first with this white S.E.-5. Flew fine with 2 speed engine control. Motor stopped on circle's far side, ship hit wires.



Ain't that a purty baby? Gordon Bourland, Jr., Ft. Worth, has been flying this original since 1938, now Forster .29 powered. Not a scratch for past 2 years!



Dennie ("Hogan") Davis with his beautiful PAA-GAN job which was lost O.O.S. on first official. Dennie has promised to send plans to "AT."



Top time in towline gliders was established by Dick Everett with 13:42 flying an original entry. Other times were quite good, too. Here's add-shaped job flown by Keith Tucker, Visalia, Cal. Note tow stick.



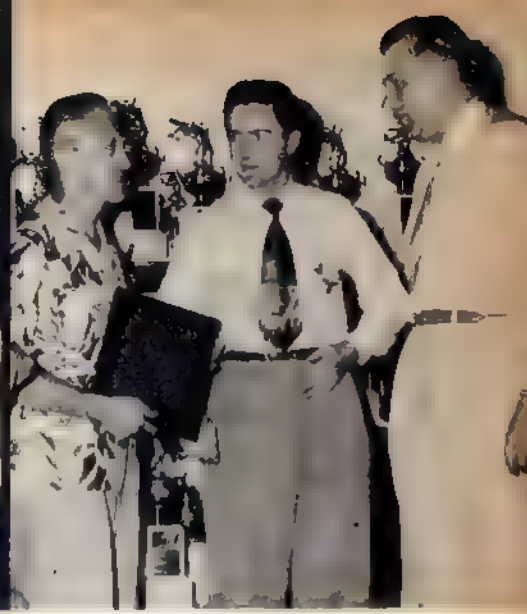
Top in c.I. flying scale: CPO John K. Abbott, USN, Corpus Christi (left). His Corsair got 50 points, also 3rd in Carrier. Navy's John Burton (right).



Now, how about that? Jim (the characters' character) Walker demonstrates how to fly three models at once. Center ship is attached to rotating pivot atop helmet.



A fast moving fellow. L. Herbert Davis was 4th in A senior speed, 1st in B with 125.78 mph and first in D with 148.76 mph to cop Air Trails' Kulick Trophy. Herb, Birmingham, won jet (142.63 mph).



"June" Pierce Sportsmanship Memorial Award to Carl Goldberg (lt.). Navy's Ass't. Sec. for Air, J. F. Flaberg (rt.) & Jim Pierce awarded.



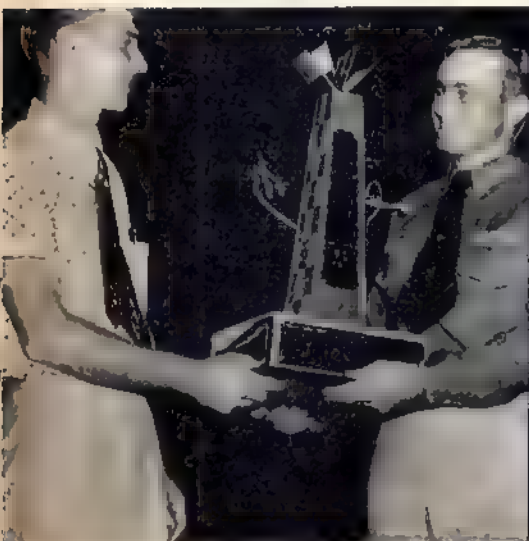
"AT" Ed Al Lewis (left) awards Air Trails Perpetual Trophy to Carl (Babe) Hall and Pat Massey for taking Class D open speed with 146.69 mph with their "Golden Rod."



Another neat stunt entry was this blue and white job, an original built by George Aldrich, Edinburg, Tex. Power is Fox .35; wing area is 498 sq. in. George took fourth in the senior division with 352 points.



Bob Dever, Dallas, gets wind check in Jr.-Sr. PAA-Load on one of his flights which won him 2nd with 3:34.8 —1.8 sec. behind Mike Cook, Ohio.



Two grand chaps: Keith Storey (c.l. director at meet) presents F.A.S.T. club's team racing trophy to Bob Lutker who flew course in 11:42.2 at average of 57.5 mph.



Helping rack up points towards his Open Class Championship is this hand-launched stick model belonging to Bob Bienenstein. Wing area is 149 sq. in. Indoor events in Will Rogers Coliseum, Ft. Worth.



THE END . . . THE ABSOLUTE END! Bob Day, Orlando, Fla., typifies average contestant as 6-day Nats neared end. See you next year!

Douglas Mailplane

Free flight flying scalars are coming into their own; here's an oldie and a goodie for Half-A fans

By WALTER A. MUSCIANO

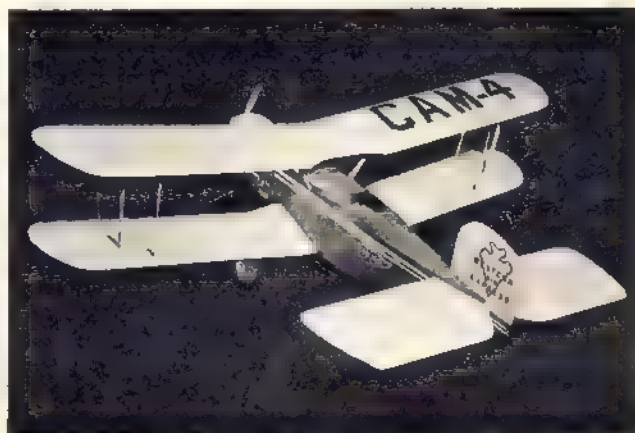
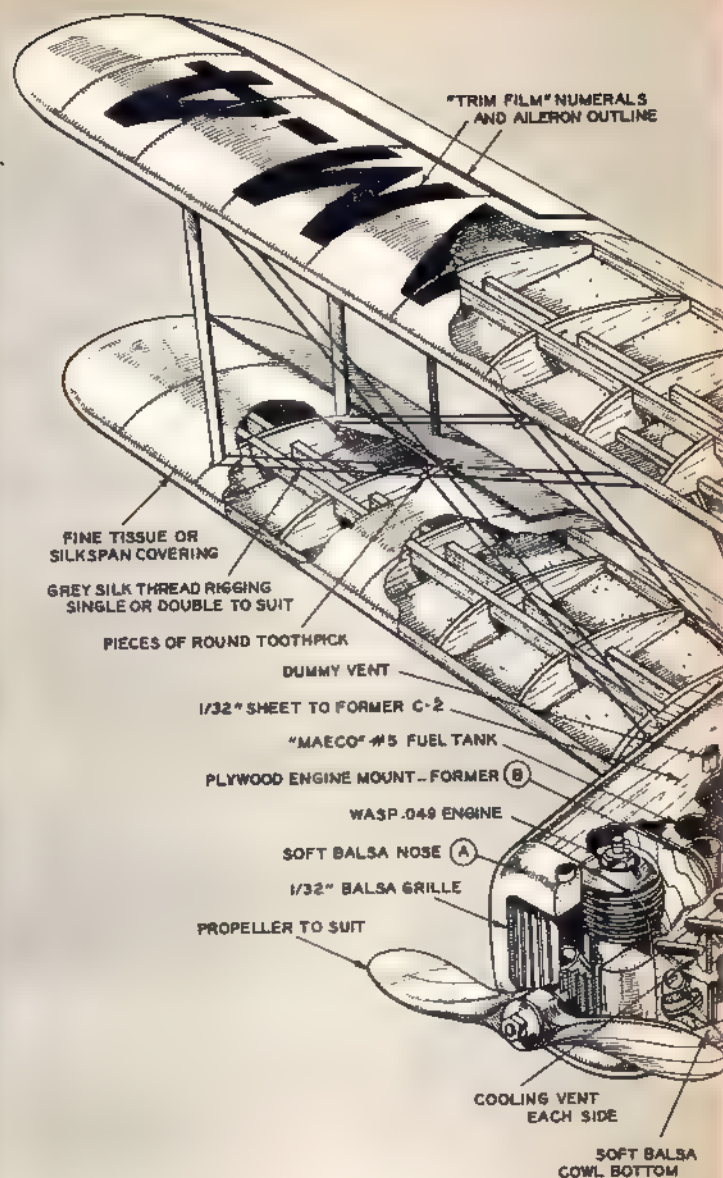
■ We were attracted to this "old timer" by its excellent qualifications for free flight model performance with either rubber or Half-A engine. Both .049 and .099 engines are illustrated in beam and as well as bulkhead mountings. Instead of using a fuel shut-off mechanism, we put in a Maeco No. 5 transparent flight tank which gives a run of 25 to 30 seconds for some real flying of this 234-square-inch-wing-area model. . . . We thank Messrs. Don Black and Chet Miller of Douglas Aircraft Co. for their cooperation in supplying information on the prototype airplane.

Sand all balsa before it is cut and assembled. This pre-sanding removes nap and eliminates some weight that is neither structural nor an asset to appearance. The fuselage basic sides are cut from sheet balsa and followed by the formers. Cement the sides to each other at rear and attach former "F" in place. When dry, cement the remaining formers in place including the plywood bulkhead engine mount or beam mounts. Bend the fine music wire cabine struts and cement them rigidly to formers "D".

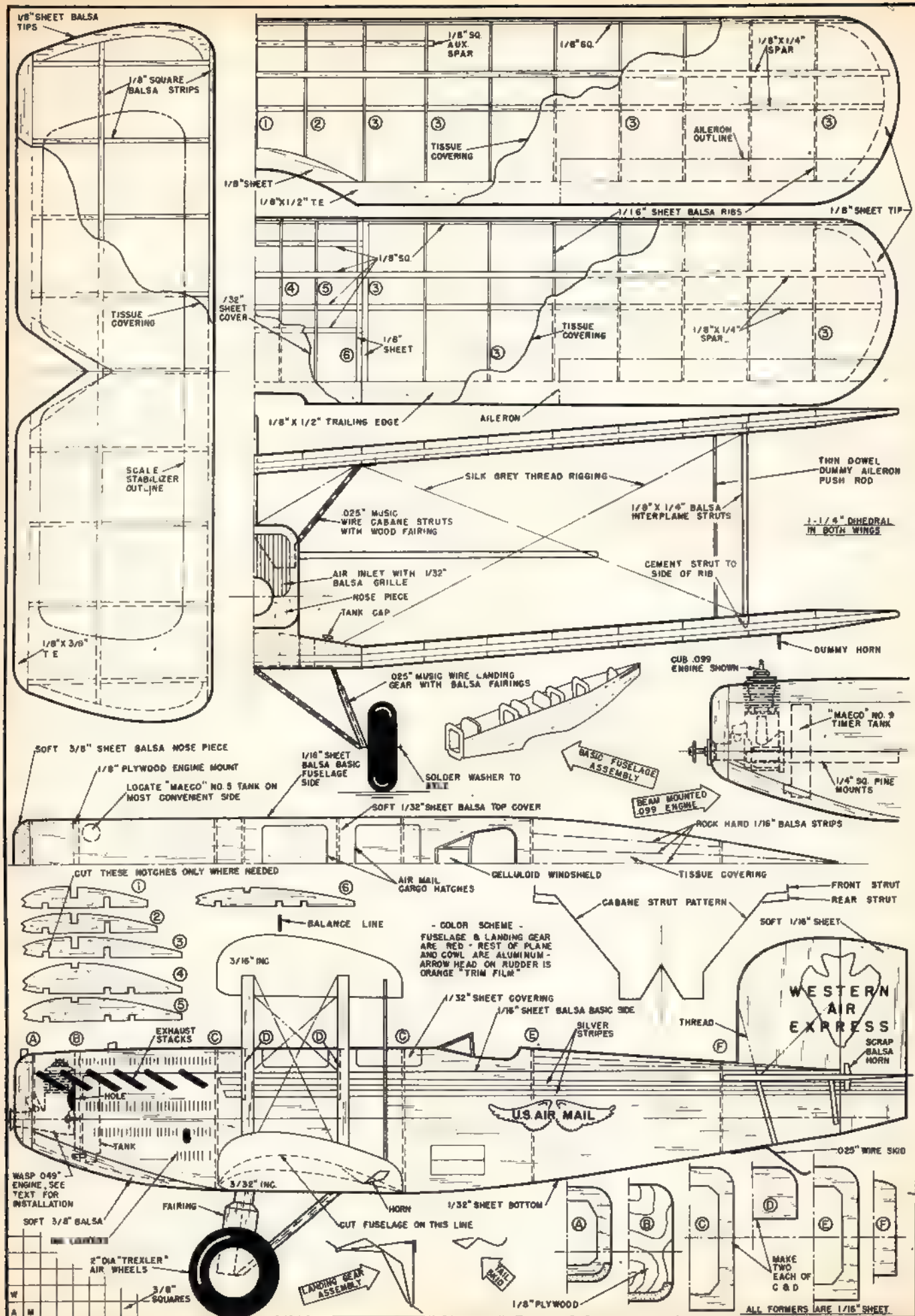
Add the nose block, then the 1/32" sheet covering of fuselage top. Add the 1/16" square stringers to turtledeck. They are cemented directly to top of the formers and not set in notches. The turtledeck is covered with very fine tissue.

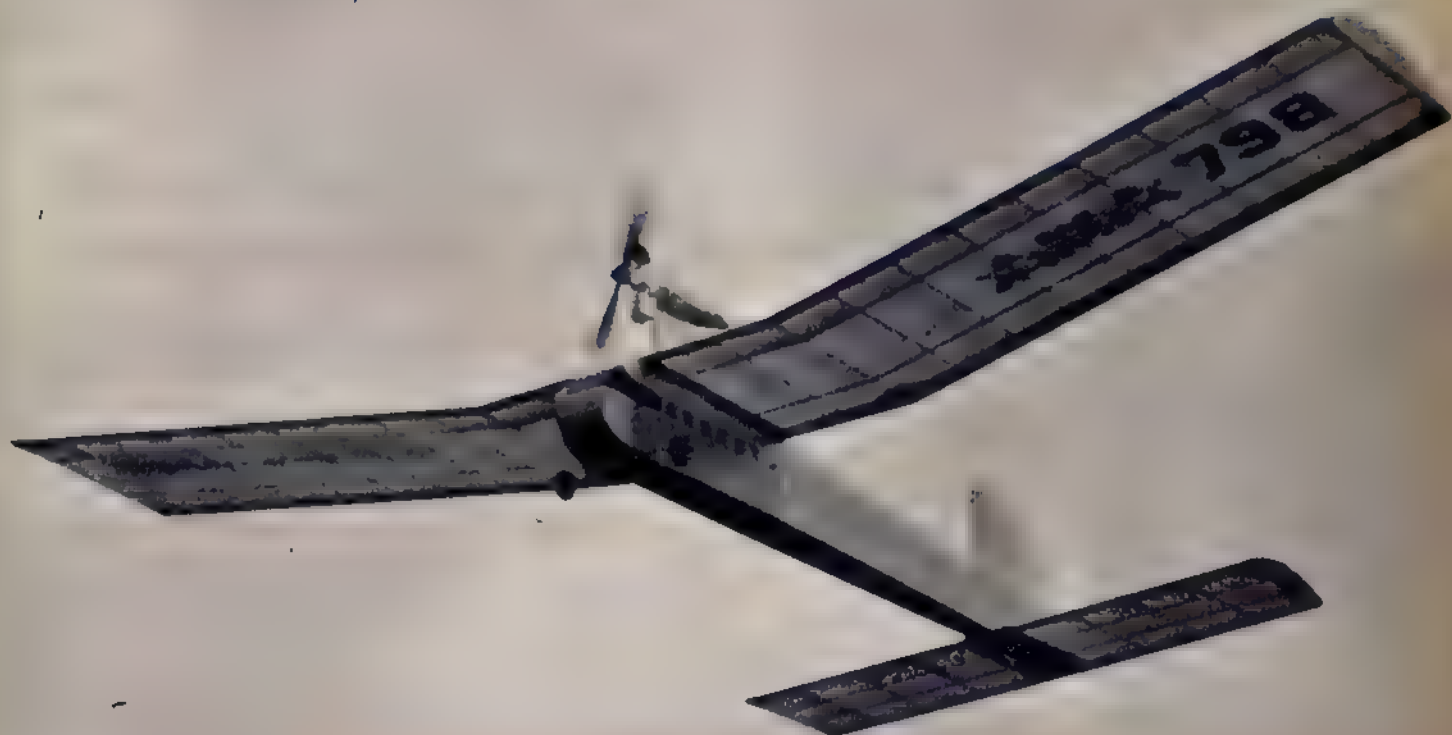
To install landing gear we must first construct the lower wing center panel. This was used as gasoline tanks on the full-scale plane which accounts for its thick section. Cut spars and ribs from sheet balsa and pin spars to the work table. Cement ribs to spars, followed by the leading edge. Bend the landing gear, solder all joints lightly. Bind the gear assembly to the spars, cement well. The center section is covered with pre-sanded 1/32" sheet and cemented to fuselage. Install fuel tank and pass engine fuel supply line through bulkhead (bulkhead mount only). Fuselage bottom aft of the wing is 1/32" sheet covered while that portion forward of the wing is carved from a very soft balsa block and hollowed. Sand entire fuselage lightly.

Pin the stabilizer structure to work table and cement all joints liberally. Remove and sand well. Recement joints and cover the structure with lightweight tissue, using dope as adhesive. Pin stabilizer to the work table again and (Continued on page 66)



One of first specially designed mail carriers, the 400 hp "Liberty 12" powered M-2 did 145 with 1,000 lbs. of mail—a fast job then.





ROG-ROW "Combo" Sport Free Flights

■ The sun is shining and the sky is blue when you leave home for the field. But by the time you get there, a local thundershower is passing over, leaving several miniature lakes in its wake. "If I only had an ROW ship now," you say to yourself, "would I have fun!"

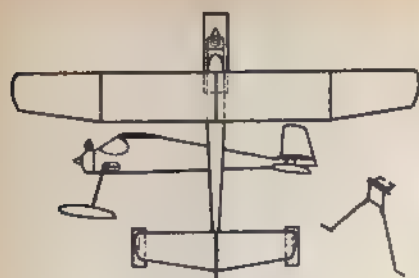
To meet situations like this you want a convertible model that can be flown as ROG or ROW with a minimum of conversion trouble. By having such a model, you are ready for any kind of flying at a moment's notice.

In designing a combination model like this, we must not forget that it is primarily intended for sport flying, and not for contests. This means that we are not after roaring skyrocket climbs, nor wide-open engines. What we want is a model that will give us a minimum of maintenance and flying trouble. If the engine is touchy for high speeds, forget it, and let it run at whatever speeds you can easily adjust. And to really make it "sport flying," we want a model that will last from week to week without rebuilding or extensive repairs.

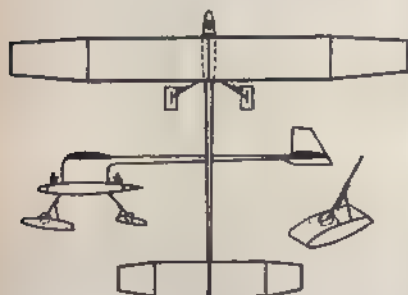


Here's the rise-off-water ship;
large photo shows R.O.G. flight.

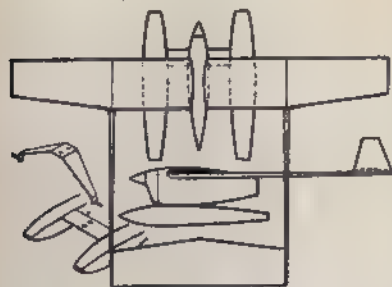




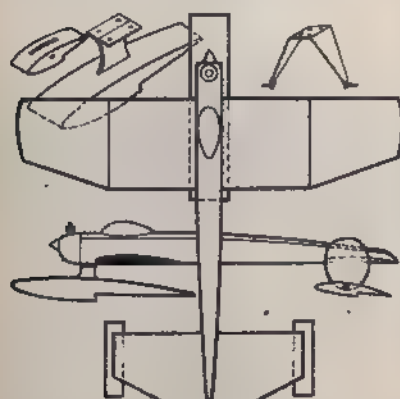
Cute, conventional type by Robert Eldridge, Bakersfield, Cal., who's been flying the design for some time. Crutch-deck follows thrust line; interchangeable wheels, float gear snap on; 202 sq. in.



George ("The Professor") Perryman, '51 U.S. Wakefield team captain, West Point, Ga., produced this twin Wasp powered nifty. Span 54 in.; floats fit wheels. Big float 3 x 6", others 1/2 that.



Twin floats attached to dural plate unscrew for wheel replacement in this job by Anthony A. Faranda, Yonkers, N. Y. Span 30"; floats 12 1/2". Booms, hard 3/4" balsa. Wasp power. Length, 20".



Sgt. Norman E. Anderson, USA, doodled this winner. Aft floats bolt to rudders; front float has dural plate on ply pylon to fit i.g. mounting holes. Square fuse, bubble canopy. Dihedral in tips.

These stipulations call for a model that has large wing area for its weight and power. By having a large wing on a light model, we are sure of slow glide. If the model does hit something, the damage will be slight. By using a small engine, we do not have torque and high speed troubles which make contest flying such a haphazard affair. By using large wing area and low power we will obtain a model that is stable at all times, and the flyer will have no trouble in keeping it under control. On a high speed model a slight touch on the rudder may mean a spiral dive. On a slower ship, such an adjustment will simply correct a fault.

The design which best meets the above requirements of ROG and ROW sport flying was submitted by Frank Ehling of Jersey City, N. J. Note how easily it can be converted to ROW. The floats are just snapped on and the model is ready. From the sport flying viewpoint note the 400 sq. in. wing in combination with a .049 K&B—also, the all-balsa fuselage which should last a long time. The wing is fastened so that it can pop off readily to prevent paper shattering (which happens if the wing goes not come off on impact). By having the engine above the wing, it is possible to use same prop for days, instead of counting number of flights by the number of broken props. The high engine position allows a stubby landing gear, assuring more than the average number of three-point landings. The model can also be packed into a small place as all units are removable.

The common fault with ROW models is that they have trouble in picking up flying speed at the start. To overcome this on the design shown, the model is set on water so that the wing has only 1 deg. angle of attack, while the stabilizer and thrustline are at 2 1/2 deg. to the waterline. At start of the flight, the wing is in a very low drag position, thus making it possible at low power to pick up speed rapidly.

As the speed picks up, the front float and the lift of the wing in combination with depressing tendencies of the negative stabilizer, will bring about high angles of attack and permit the wing to lift the model off the water. Thus it is that the model is allowed to pick up speed at the beginning, and then automatically assume correct take-off position.

Actually, the angle of attack on the wing varies. In a glide it may be at 6 deg., and under power at 4 deg. If the take-off speed is below gliding speed, the stabilizer will

automatically press the rear of the model down. Remember, the aerodynamical balance between wing and stabilizer will occur when the wing is at 6 deg. Some may say that the downward pressure of the stabilizer will contribute drag. It may do so slightly, but note that by having stabilizer floats deeper in the water, they will have water rudder effect for better directional control at the beginning of the ROW.

Besides keeping prop breakage low, a high engine position also means that the prop and engine will be clear of water at all times. If the prop is close to the water, it is liable to spray the model and the tail surfaces. We may not mind having the model wet, but just think what can happen to its balance with all that extra water weight on the tail! However, there is one disadvantage of such engine position; it tends to make the model tail heavy. Normally, the engine is in front balancing the tail end. So, be especially careful in selecting balsa for rudder and stabilizer.

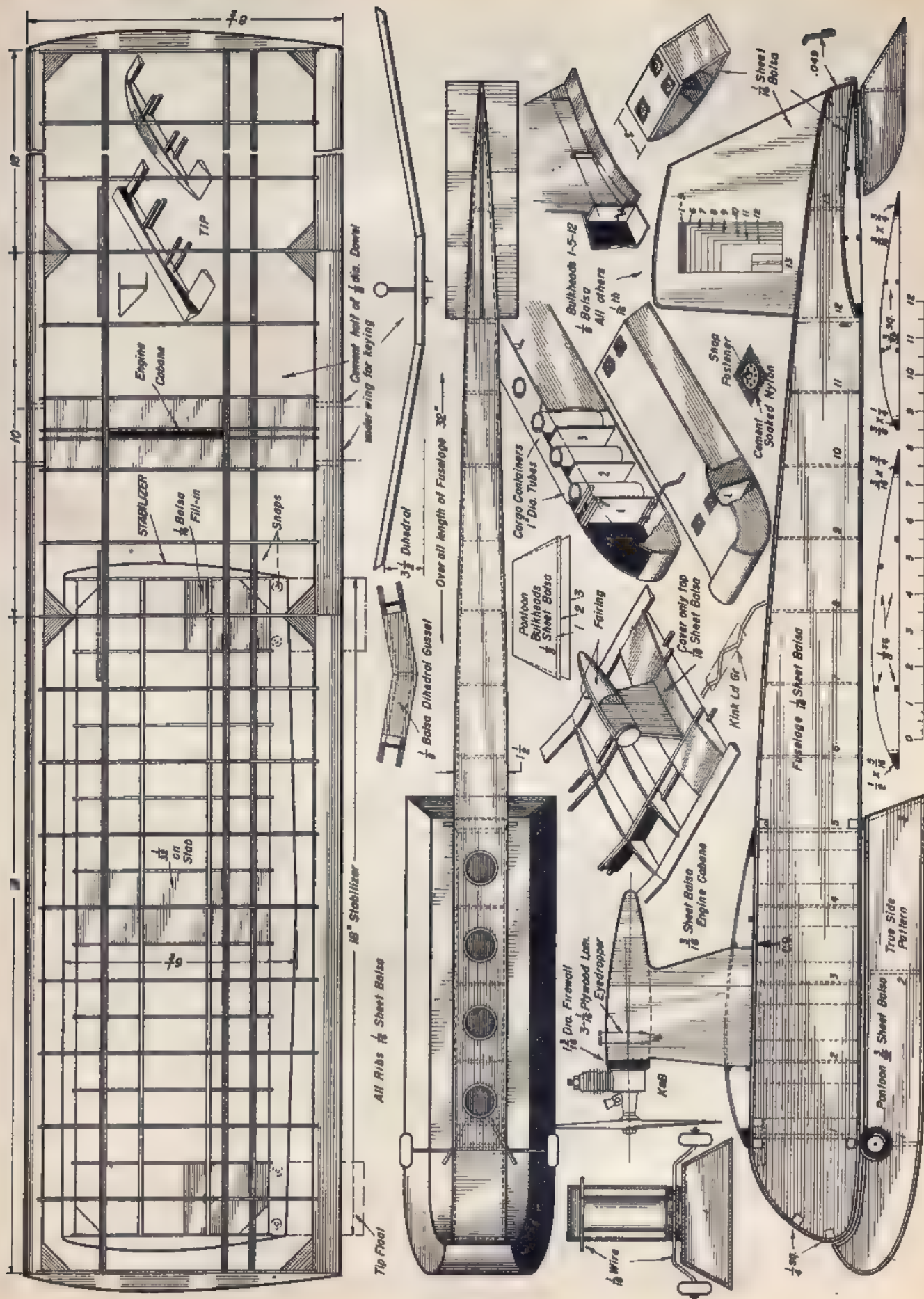
Of course, if you plan to use this model for cargo carrying, you can easily trim it by placing weight and clay mixture in the proper cargo tube. If the model is not used for this purpose, you may have to add balance weight in the nose section.

This is done by completing the fuselage with exception of the nose covering. Also the stabilizer. With stabilizer in place, the fuselage should balance about 1" behind the C.G. mark shown. If it does not, and is tail heavy, add enough clay in the nose to bring about this balance. Check with floats on and off. It is best to have C.G. approximately correct before test flying. Thus, all adjustments can be done with mild stabilizer settings.

Cut fuselage bulkheads from 1/16" or 1/8" balsa stock. Cut sides to outline. Use light but firm C stock. Cement rear section first. Let it set well before gluing in bulkheads. Start with #12 and move forward. Cement-tack only #1. Before cementing the 1/4" sq. cross strips, mount all items on them such as landing gear on the bottom, and wire lengths to the top two. You may have to remove #1 bulkhead to position "V" wire piece as shown.

Cover bottom with 1/16" sheet. Use slow-drying cement. Be sure that all bulkheads are cemented to bottom. You can apply cement fillets from the open top.

Cut rudder to outline. Sand edges round. Do not streamline as that would weaken it too much. Set in position, (Continued on page 62)





The Glutton

By FRANK L. PARMENTER

■ Here is a simple Half-A that has nice lines and is a real performer. We decided that the extra couple of hours it would take to build a good-looking model was worth it, hence did not use the customary square tips and square stabilizer so common today. The tip and stabilizer outline is simple and actually very little extra work. An eye-dropper in the pylon serves for a gas tank. There is enough gas to start a reliable engine and then hold the model till the gas is down to the proper level to give you the engine run desired.

We have flown this model in all sorts of weather; it has taken all kinds of abuse and is always ready for more. It is a glutton for punishment and gives real performance. Has a terrific climb and an amazing glide. It is a "hot" flyer,

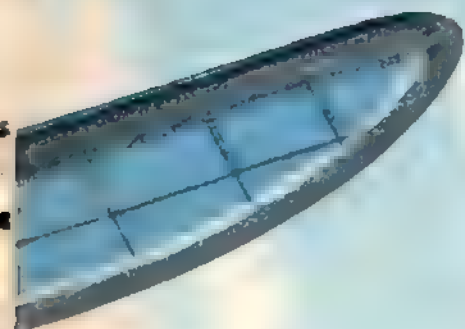
so be careful till you get it right.

It might seem that making a fuselage out of a solid block would be heavy. After it is built, you will see there is so little cross section that actually there's not much fuse to have weight. Use medium-hard balsa $\frac{3}{4}$ " square or two pieces $\frac{3}{8}$ " x $\frac{3}{4}$ " glued together. If the latter, cut out the notch to receive the pylon before gluing together. If $\frac{3}{4}$ " square is used, the notch will have to be gouged out. Curve the blank to a circular cross section after tapering to the proper outline. In the rear, cut out the notch for the stabilizer saddle and glue the $\frac{1}{16}$ " x $\frac{3}{4}$ " x 3" plywood saddle in place. Do not spare the glue at this joint.

Next comes the pylon. Glue two pieces $\frac{3}{16}$ " x 3" sheet balsa together to get the width for the

pylon. On top is glued a piece of $\frac{1}{8}$ " x $\frac{3}{8}$ " x 6" hard balsa. Then glue firmly a piece of $\frac{1}{16}$ " plywood 2" x 3" for the wing saddle. Add small balsa blocks on top of the plywood to form the "V" for the wing dihedral. Make the cut-out to receive the eye-dropper. If you make it a nice snug fit, there is no need to glue it. The eye-dropper can then be pushed out of the pylon to fill it up and pushed back in place. A hole is drilled through the fuse in line with the eye-dropper and groove cut down the bottom of the fuse from this hole to the firewall to take care of the fuel line.

We did not use a landing gear, but if one is desired bolt it to the middle of the firewall. The bolt will then come into the hollow of the crankcase. Drill two $\frac{5}{32}$ " holes



Designed by a member of the famed Langley Field, Va., Brain-Busters Club, this ship's hot!

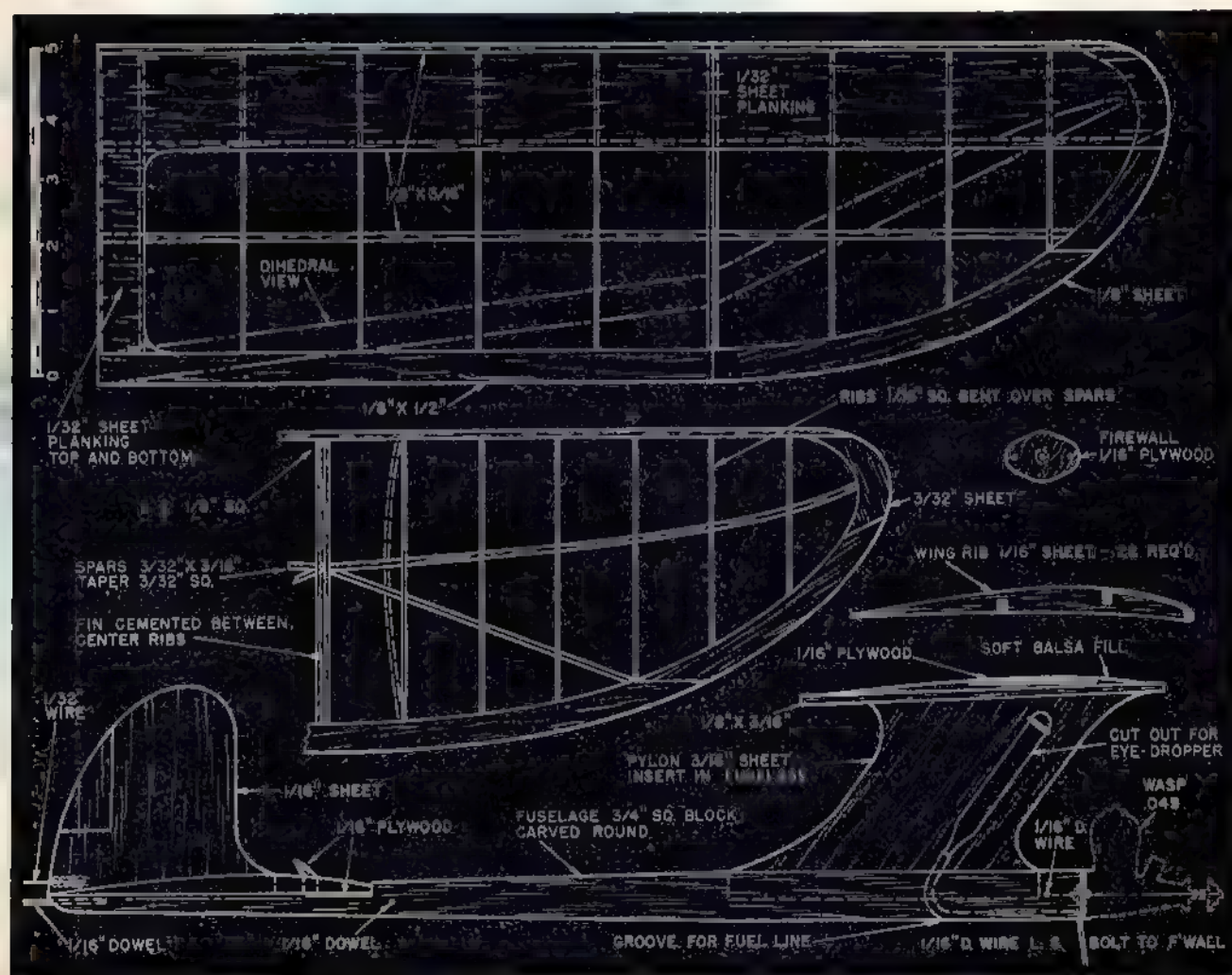
to act as line-up holes to receive the two bolt heads that hold on the back crankcase cover. The bolts go in from the rear with the nuts on the front. Use the ends of these bolts that stick out and the peg in the fuselage just back of the firewall to wrap rubber bands around to hold on the motor. This is a simple method and very satisfactory. If you plan to use some other motor you will probably have to make a different-shaped firewall to suit.

Give the whole works three or four coats of fuel-proof paint. Be sure to get all glue joints and the cut-outs for the eye-dropper and fuel line.

One half of the wing can be built directly over the plans. The other half will have to be drawn up. A

good way to do this is to trace over the plans shown; turn the paper over and draw in the lines that are on the other side. The tip ribs are cut the same as the main ribs and then shortened to length and faired to match the trailing edge on the top surface. Double glue at all dihedral joints. Cover wing with Jap tissue. Use about two coats of regular dope and follow with two coats of clear fuel-proof paint.

The construction of the stabilizer is simple, strong, and light. First, cut out the trailing-edge outline. Lay this outline on the board and cut $1/16$ " square pieces for the ribs to fit between the leading edge and trailing edge. After all the bottom ribs are in place, lay the $3/32$ " x $3/16$ " spars on top. If your spar does not (Continued on page 81)



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Formulated especially for model airplanes! Available in a complete range of 25 colors and clear. Unequalled quality for one-coat coverage... smooth, lustrous glass surface... pure color brilliance. Jars: 15c (1/4 pint), 40c (1/2 pint), etc.



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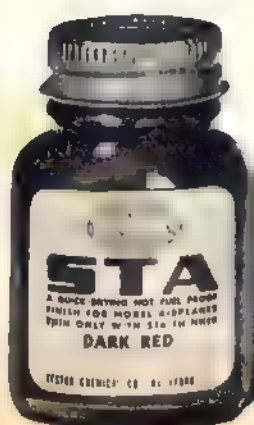


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ILLINOIS



By FRANK EHLLING

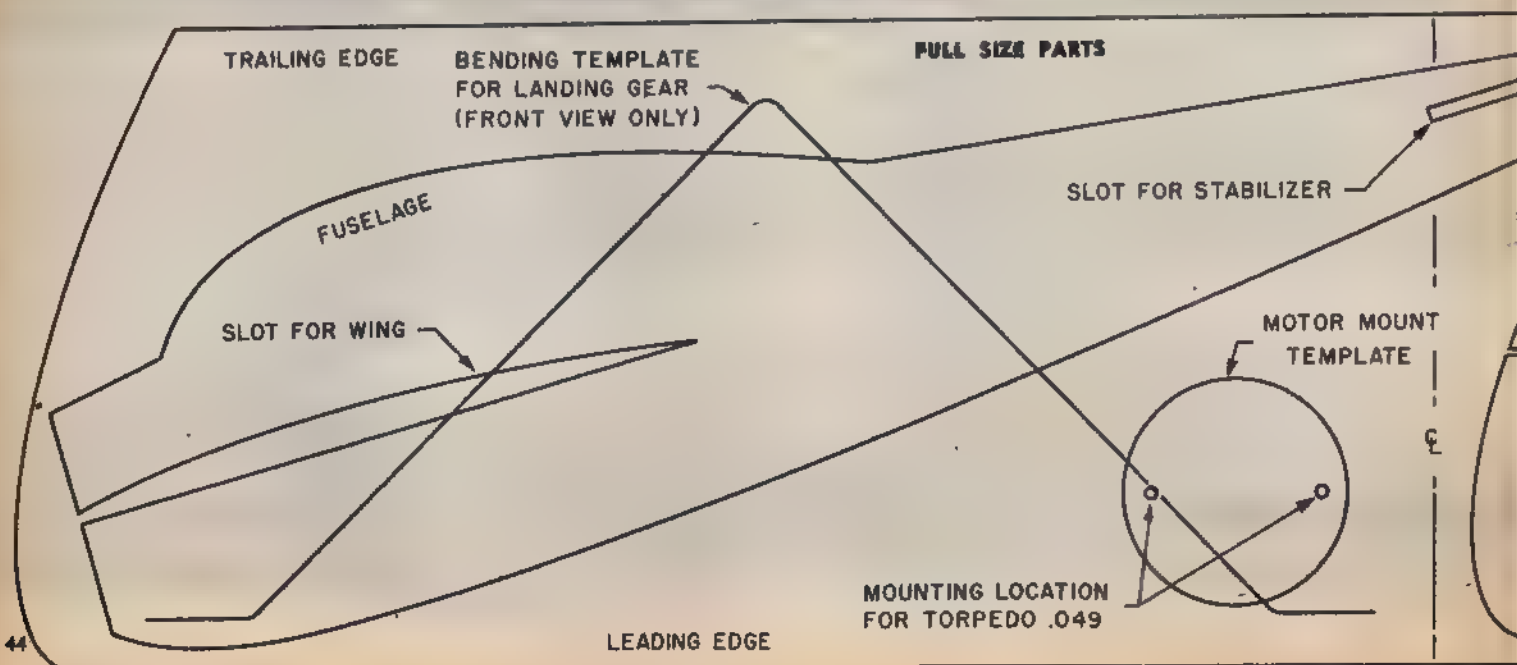


■ For real stunting performance this all-balsa model must be kept *light*. For top results use a stunt tank mounted under right (out-board) wing. Use medium hard balsa for fuselage; light balsa for all other parts. With motor your finished *Stunt Chum* should weigh not much more than 4 oz.

The controls must work easily—and the wheels must track freely for a straight-away roll.

For the firewall, sandwich landing gear between two pieces of plywood; a balsa filler goes in the center with wire. To obtain right offset so motor pulls plane toward the outside of circle, make a wafer disk of pine about 1/16" thick, then sand it down on one side to produce engine offset shown on top plan view.

Elevator hinges are made of cloth, nylon, or bandages. Elevator must move freely. Use a small block plane to rough out the wing



section, then rough sandpaper cemented to a 3 x 12 inch block of balsa (half-inch thick) to rough-finish the wing. The coarse paper is followed up by #000 fine sandpaper.

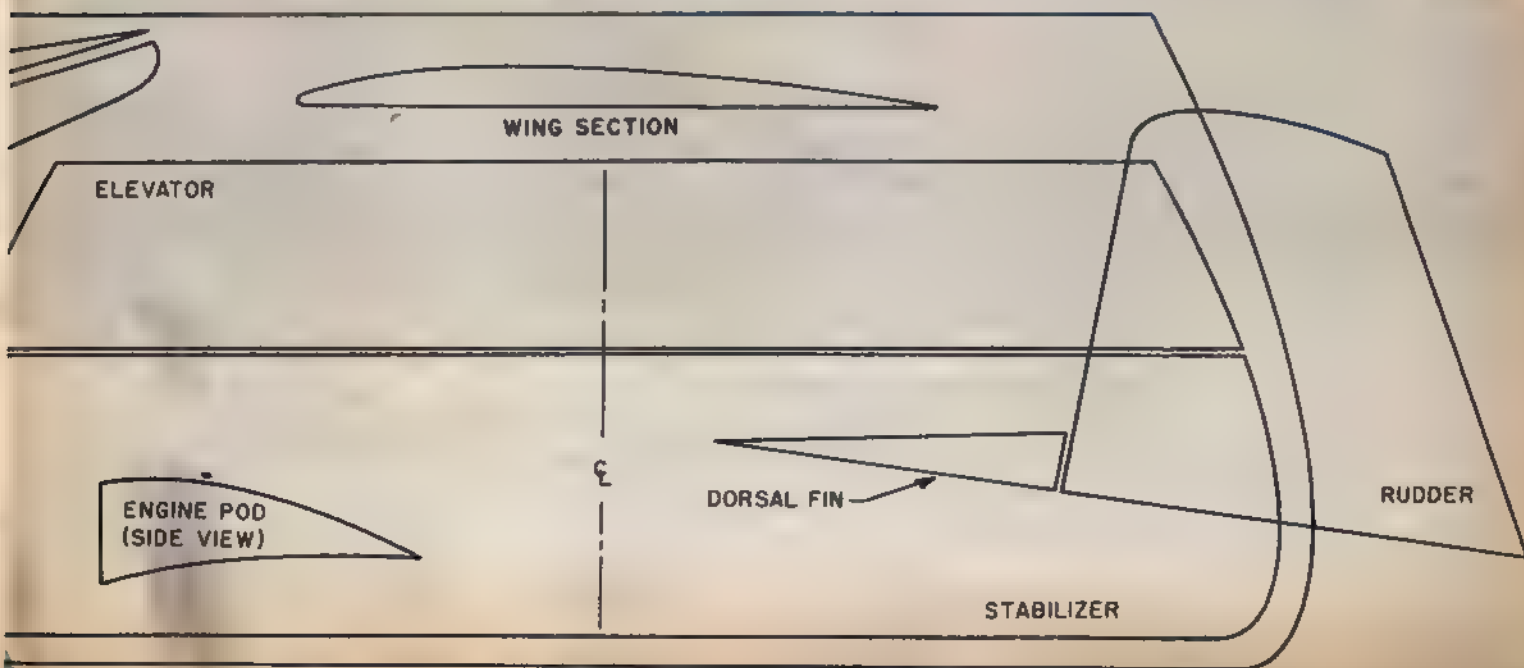
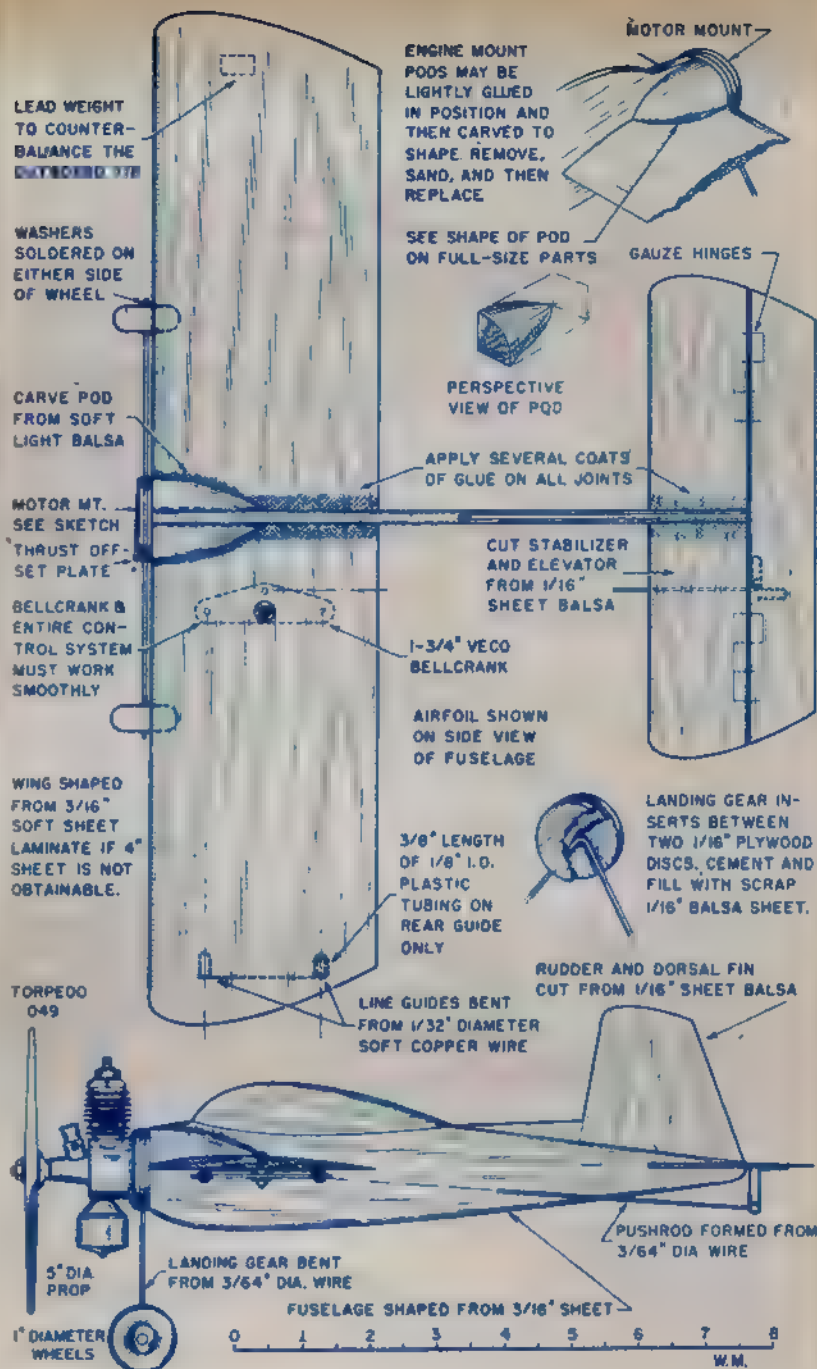
Glue model together using cement liberally around motor mount, pod and wing connection. Give wing several coats of dope where the bellcrank bolt is fastened. Don't attempt to operate model without wing line guides.

When control mechanism is in place and works with complete freedom, you can remove it for the finishing operation since you don't want dope and fuel-proofer to gum up the system. Remove engine, too.

Give entire model 4 to 5 coats of dope. Sand lightly between coats with #2-80 wet-or-dry sandpaper used dry. If dope is thick add castor oil to prevent warping any thin edge of the balsa. Add coats until surface is waterproof to the point where it will shed drops of water.

We apply our Trim-Film as follows: cut to size, place on wing in usual manner patting out most of the water that is under the film, immediately spray a light coating of dope over still-wet film. This softens the Trim-Film and permits uniform drying.

Finish by spraying with fuel proofer. Replace engine and control system. We used .028 wire for our lead-outs and attached these to 30-foot lines.



AF's

WORLD WIDE MODEL PLANE CHAMPS



A nice getaway with his Cumulus Class A entry is made by Capt. Eugene Comontajski who represented Air Research and Development Command. At meet 12 of AF's then 21 commands sent teams. Next year's AF meet has already received top brass okay.

Winner of Class D speed with 141 mph was First Sgt. Robert Sugden (right) from Salt Lake City. His ship was a modified Little Rocket metal pressure cowl and McCoy .60 engine. Capt. Pel Burnett (left, below) and Capt. Gene Causey compare c. 1. scale model entries. Capt. Burnett, Hill Field, Utah, won event with his P-47N which featured such items as electrically retracting gear. Capt. Causey, Andrews AFB Washington, D. C., flew his B-25 with great success.



■ One week prior to the Nationals, crack modeling teams representing twelve AF Commands converged on Sheppard Air Force Base, Texas. Occasion was the first AF World-Wide Model Championships which bore the auspicious AMA sanction designation of AF-1.

Under perfect flying conditions the officer and enlisted personnel competed together for individual and team trophies and the right to represent the AF at Dallas.

Flown in from AF bases throughout the country as well as from Alaska, Hawaii, N. Africa and Germany, most contestants had first won elimination contests. All usual events except radio control, ROW and indoor were staged including PAA-Load, Clipper Cargo, and an experimental Half-A speed-with-load event.

Complete Air Force cooperation assured success of the meet, which is to be a continuing annual event, and was the highlight in Lt. Harry G. Vogler's twenty-five-year career as contest director. Expert planning by Lt. Vogler resulted in an exceptionally smoothly run competition.

Several flights exceeding one hour were scored in free flight events.





The inevitable "hot helmets" showed up; this was proclaimed the best. Built by speed man Cpl. Robert Olszewski of Sheppard who also manages to make models during off hours.



Crack flying scale builder and multi-engine fan is Sgt. Bryant Thompson who flew this B-36 model with six K&B Torp .049's. Note scale gear; he also entered ship in Nats.

S/Sgt. Woodrow W. Holleman, Elmendorf AFB, Alaska, was member of 6-man team representing the Alaskan command. This "Apex" job was his Wakefield entry.

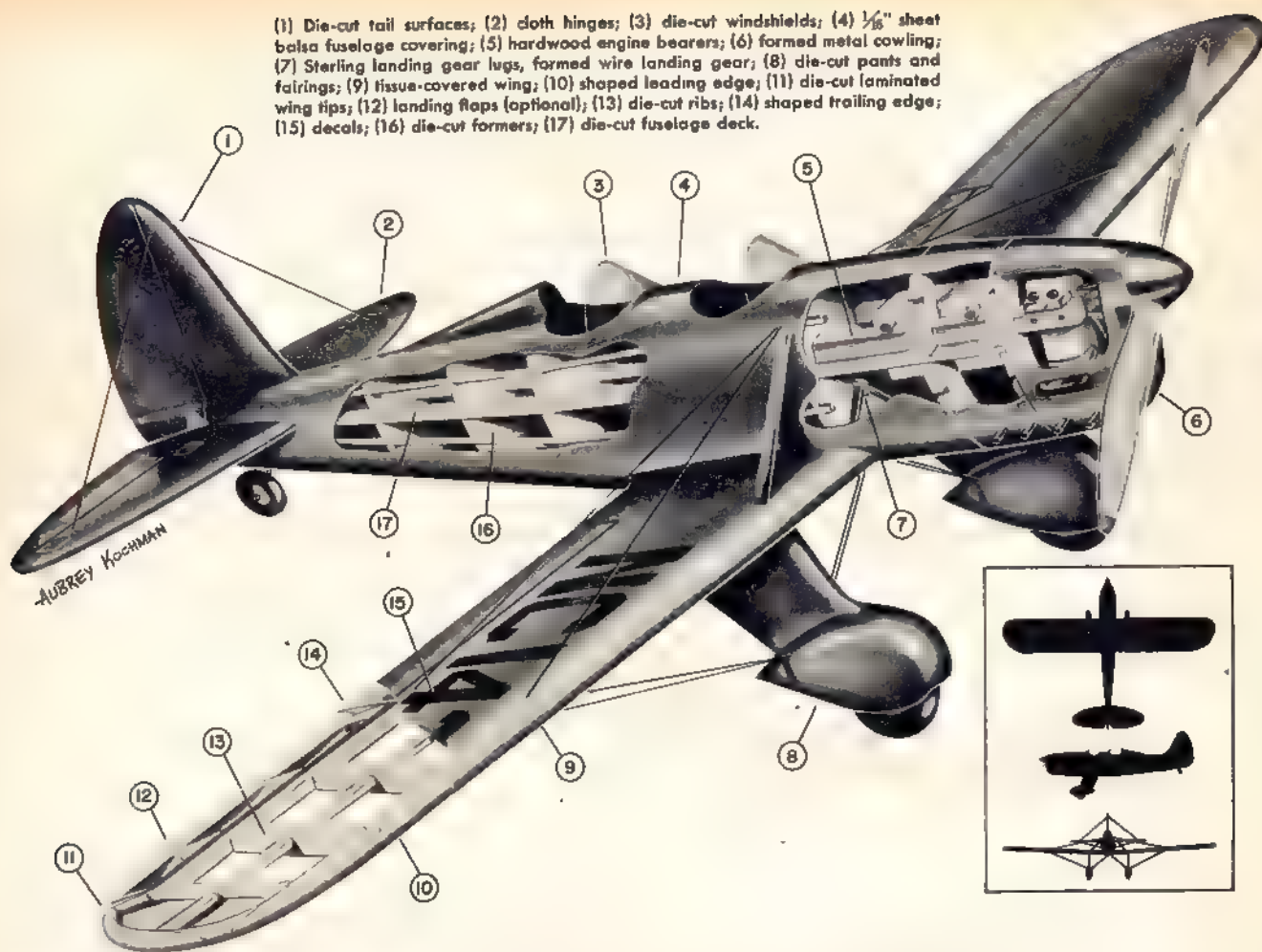


Wheeler AFB, Tripoli, N. Africa, MATS' Pfc. Tom Baker of Kings Mountain, N. C., set new jet record of 155.12 mph. Got 6 trophy, plaque awards, tied for top honors.



Air Training Command Team receives award as the winning group from Lt. Gen. Robert W. Harper, Commanding General ATRC, at the conclusion of the Air Force World Wide Model Airplane Championships held at Sheppard Air Force Base, Texas. The winning team will keep the trophy for one year when it will be turned over to the Project Officer for competition at next year's meet. Back row, left to right: Pfc. Herman Stubblefield; Pfc. Bob Ogren; Lt. Harry Vogler, Project Officer for the '51 meet; Cpl. A. L. St. Clair; Lt. Gen. Harper, Cpl. Bob Olszewski; Sgt. George Mueller, Williams AFB, Ariz. Front row, left to right: Pfc. Mark Brown; Capt. C. E. Burtner, Connally AFB, Waco, Tex.; Cpl. Ralph Tenny, and Cpl. Wm. F. Bertrand, Luke AFB, Ariz. All from Sheppard AFB unless noted

(1) Die-cut tail surfaces; (2) cloth hinges; (3) die-cut windshields; (4) $\frac{1}{16}$ " sheet balsa fuselage covering; (5) hardwood engine bearers; (6) formed metal cowl; (7) Sterling landing gear lugs, formed wire landing gear; (8) die-cut pants and fairings; (9) tissue-covered wing; (10) shaped leading edge; (11) die-cut laminated wing tips; (12) landing flaps (optional); (13) die-cut ribs; (14) shaped trailing edge; (15) decals; (16) die-cut formers; (17) die-cut fuselage deck.



Along comes Sterling now with a real grand, old-timer that will keep you occupied for awhile



**DESIGN:
RYAN "S-T"**

**MADE BY:
STERLING**

**CATEGORY:
FLYING SCALE**

■ This newest addition to the line of fully-detailed scale planes by Sterling Models, 1530 N. Hancock St., Philadelphia 22, follows the traditions that Sterling has established in this field. The kit is very complete and as fully prefabricated as it is possible to make.

The makers chose the Ryan S-T for its fine appearance and adaptability to

modeling. They have added something extra in this design, for the Ryan is not only a full-fledged stunt ship which has been checked out for ability to perform the entire AMA stunt pattern, but the plane has also been found very applicable to team racing. It has the appearance, of course, but equally important, is really fast when provided with sufficient power.

Fully prefabricated really means that in this kit. There are eight sheets of die-cut balsa ranging up to $\frac{1}{4}$ " thickness, plus a die-cut plywood sheet. Even the celluloid for the two windshields is die-cut.

Fuselage construction is based upon a balsa deck piece plus balsa and ply formers. The deck is step-cut in such a way that the formers can't possibly be installed at the wrong places. You just slide 'em along deck until they stop.

The wing is built right into the center of fuselage—especially necessary on the Ryan, which has a wing-supported landing gear. The methods of assembly insure that the wing will be at the correct angles of incidence and dihedral. The main gear wire member is a complicated item; it has 13 bends in it. The wire is held to a ply former and spar piece by metal spade bolts and nuts.

The wing is completely built up and has a symmetrical cross-section as befits a stunter. Both leading and trailing edges are fully shaped and both are notched, a detail especially appreciated

on a double cambered wing which can't be built flat on a board. After wing and fuselage frameworks are completed, fuselage is covered with sheet balsa, adding greatly to strength and appearance. Tail surfaces are of die-cut sheet balsa, with elevator hinged on fabric tape. Plans show details for adding workable flaps for those who want them.

One of the real features of Sterling's Ryan kit is a beautiful deep-drawn aluminum cowl, big enough to completely enclose the motor. The latter is installed inverted, of course, and the cowl is punched out to allow cooling air to enter. This cowl will save builders a lot of time.

The accessories envelope is unusually complete, with machine nuts, bolts and lockwashers for motor mounting, cloth tape for the elevators, wood screws for fastening gas tank and control system, etc. Final appearance will be greatly enhanced by the large sheet of decals which contains wing numerals for top and bottom of the wings, rudder numbers, and authentic Ryan trademarks.

The finished Ryan is an impressive job spanning 38", with length of 26", and is intended for B & C engines. Though the structure is moderately complex, the well-worked-out design, complete prefabrication and Sterling's usual full size step-by-step detailed plans and instructions should make it a practical project for even the less experienced builder.



**DESIGN:
BEARCAT**

**MADE BY:
DYNA-MODEL**

**CATEGORY:
SOLID SCALE**

■ Solid scale models continue to enjoy great popularity and with good reason, for in solids the real craftsman can let himself go without fear of mounting weight. A good example of what can be done to furnish super-detail is seen in the Grumman F8F Bearcat kit offered by Dyna-Model Products Co., 76 South St., Oyster Bay, N. Y.

The big feature of this kit, as with all the others in the Dyna-Mo solid scale line, is the inclusion of a complete set of cast metal parts. The Bearcat has 12 of these, from a tiny

control stick on up to intricate motor and four-bladed prop pieces. The completeness of detail is possible because the parts are made by a jewelry-casting process.

The finished model is small—it spans only 9" and is 7" long—and the finished job will be in perfect 1/4" scale, but because of the cast parts, it can be made a super-detailed job. Proof of this is seen in the fact that dozens of builders of Dyna-Model scale kits have won top honors in contest work.

The fuselage block is fully shaped from basswood and requires only sanding to finish. The cockpit area is cut deeply in this piece so the builder can install an accurate replica of the F8F cockpit. This is made easier since a cast metal bucket seat and armor plate headrest are furnished.

The two wing halves are of 1/8" balsa cut to exact planform. Assembly of wing, fuselage and other parts is easy, for the manufacturer has included a cardboard assembly jig that holds these parts in correct alignment while the cement is drying. Also furnished are cardboard templates to check fuselage, wing and stab cross-sections.

The wing tips may be hinged as they are on the full-sized ships by following details shown on the plans.

Tail parts are in a die-cut balsa sheet, and are to be shaped and

cemented in the usual familiar fashion.

The cowl front is a turned hardwood piece, the center of which is hollowed out to receive the motor casting. The latter is very clean and may be installed just as it comes. Judicious work with small files will make the other castings even more attractive by removing slight "flash-ing" here and there.

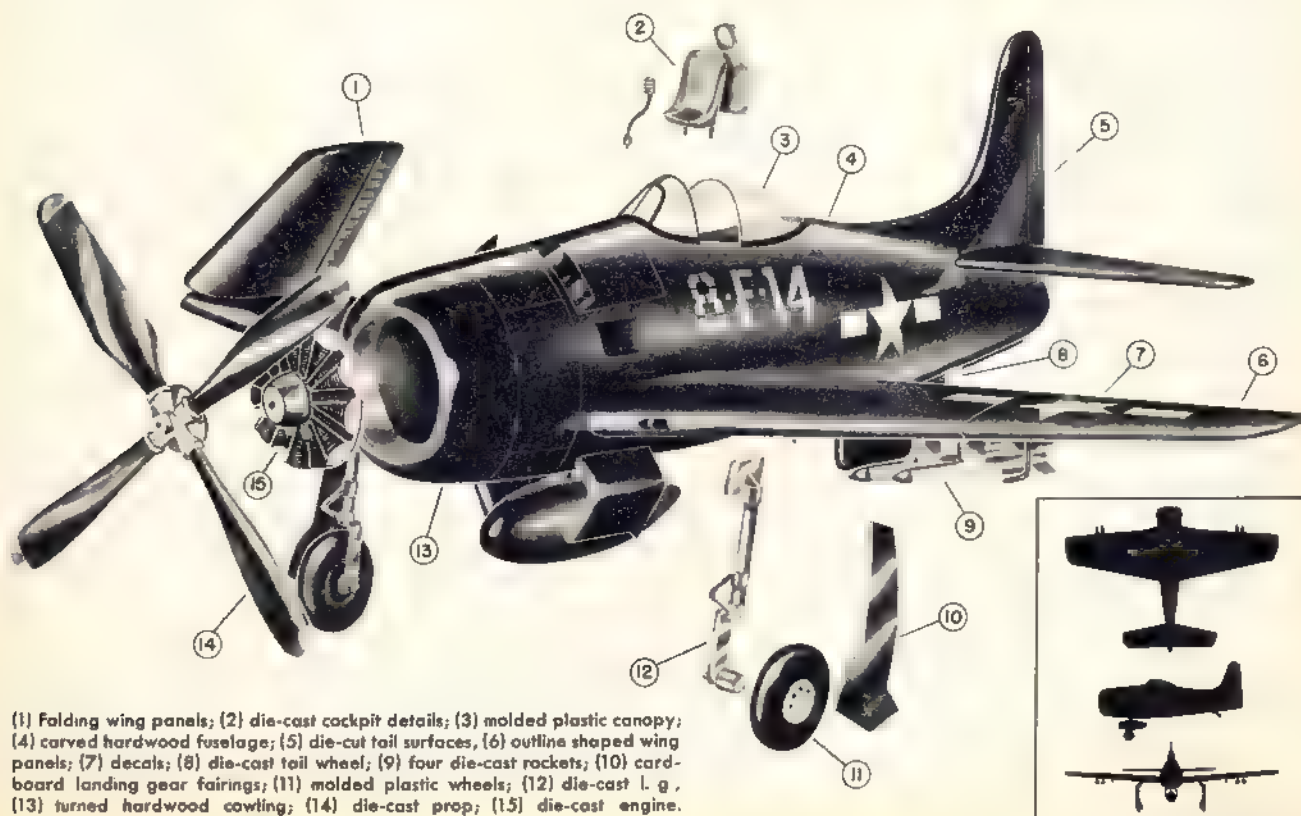
On those castings where it would aid assembly and keep them from being knocked off later, small tabs or points are moulded. The rockets, for example, probably wouldn't stay on the wings long if it weren't for the long points affixed on their mountings.

There is a moulded plastic canopy in the kit, of course, and also a decal sheet for wing and fuselage insignia, squadron markings and so on.

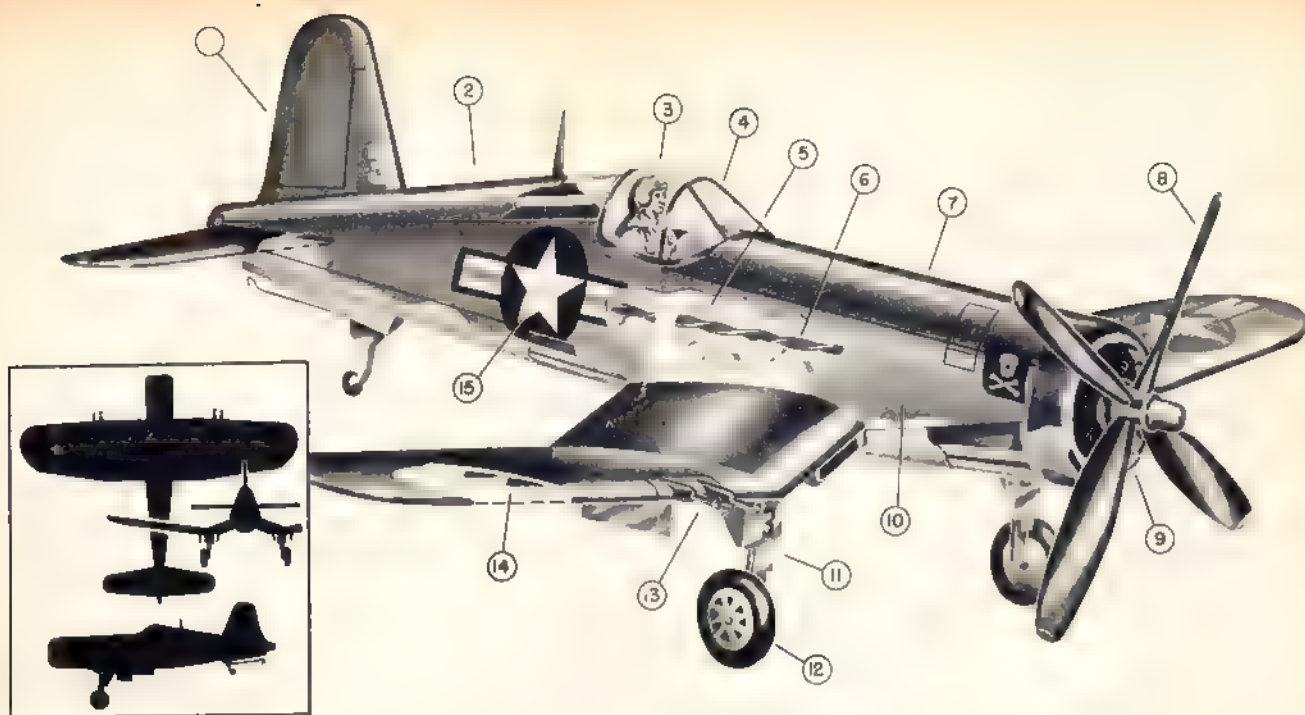
The plan sheet shows a detailed 3-view drawing of the F8F, which, if followed carefully, should allow the builder to produce a contest winner. Also on the plans are cockpit interior features, details of rocket installations, etc. Assembly sequence is given here as well.

As we stated before, a solid model is one on which a builder can really let himself go without regard for weight, moving parts, or aerodynamic considerations. This Dyna-Model F8F is one into which a builder can "get his teeth."

An honest-to-goodness accurate scale model with all the hard work done for you by the manufacturer



(1) Folding wing panels; (2) die-cast cockpit details; (3) molded plastic canopy; (4) carved hardwood fuselage; (5) die-cut tail surfaces; (6) outline shaped wing panels; (7) decals; (8) die-cast tail wheel; (9) four die-cast rockets; (10) cardboard landing gear fairings; (11) molded plastic wheels; (12) die-cast l. g.; (13) turned hardwood cowl; (14) die-cast prop; (15) die-cast engine.



(1) Die-cut tail surfaces; (2) tissue covered top and bottom; (3) plastic pilot; (4) plastic canopy; (5) die-cut formers; (6) rubber motor; (7) shaped balsa block; (8) plastic propeller; (9) plastic engine and cowling; (10) die-cut sides; (11) formed wire landing gear, die-cut fairing pieces; (12) rubber wheels; (13) plastic guns; (14) monofoil wings; (15) decals. Many of Monogram's Speedee-Biltz have been flown with Half-A motors.

One of the new trio to join the Speedee-Bilt line, the Corsair is a prefabbed cinch to make



**DESIGN:
CORSAIR**

**MADE BY:
MONOGRAM**

**CATEGORY:
SCALE**

■ The famed line of Speedee-Bilt models has recently been extended by Monogram Models, Inc., 225 N. Racine Ave., Chicago 7, Ill. Three new numbers, the F-86 Sabre, P-40F Warhawk, and F4U-5 Corsair have been added, and the latter is our concern here.

This Monogram series, as most everyone knows by now, is intended mainly for the inexperienced builder, and as such is completely prefabricated. The Speedee-Bilt line has, from the first, featured finished and colored plastic parts, and the Corsair

kit is no exception. In this one we find a four-bladed prop, cowling with engine details molded in, twin gun assemblies for each wing, and an accurately formed plastic pilot—or at least, half a pilot. Besides these, a large Corsair cockpit canopy is included, in clear plastic, of course.

Fuselage sides and in fact all sheet parts are in one die-cut piece. Assembly is quite simple, for the sides run full length and are held together with six formers and a ready-shaped balsa block that forms the entire cowl from cockpit to nose. The rounded shape, back of the cockpit and under the fuselage is obtained by 1/16" balsa stringers and paper covering.

Actually, the assembly instructions start with the wing, and should be followed to the letter, an easy matter since they are well written and well illustrated. The Corsair wing has always bothered modelers, even though it is one of the most unusual features of the plane. Monogram has solved this problem by means difficult to describe here, but really simple to carry out. The wing is of monofoil type, which means the upper surface of the balsa piece is curved to shape, while the underside is hollowed out by cutters which leave two spanwise "spars."

The wing is also shaped in planform, of course; in addition it is cut partway through at the center and also outboard where the dihedral angle changes. By ingenious use of two fuselage formers and the chord-

wise cuts, the difficult "W-shape" is easy to attain.

Landing gear wire pieces are fully shaped and the wheels are of moderately soft rubber. Plastic tubing serves as wheel bearings. The Corsair landing gear fastens directly to the wing and after it is in place, 1/16" square balsa ribs are cemented across the hollowed wing, which is then papered on the underside.

After the wing underside and fuselage top and bottom have been papered, you can add all the little pieces that mean so much to appearance of the finished plane. Besides the pilot and canopy, these include aircscoops, main gear and tail wheel doors—all in the die-cut sheet—plus arresting hook, radio mast, etc.

The plan furnished with this kit is comprehensive; there are 20 detailed assembly steps, each with its own printed instructions, a full-size side view of the model and an overall photo. To make extra sure the builder does not go wrong after building is finished, Monogram includes a separate four-page folder with many hints on adjusting.

The makers are very modest in their statement of flight duration—they claim only 30 to 50 feet. The experimental Corsair models weighed a bit under 1-oz., even though rather heavily color-doped. As with earlier Speedee-Biltz, we suppose more experienced builders will be flying their Corsairs control line with Half-A power.



DESIGN: LITTLE SABRE

MADE BY:
SCIENTIFIC

CATEGORY:
SEMI-SCALE

■ Designed to look as much as possible like the famed F-86, yet provide the best attainable performance, the Little Sabre is a recent addition to the extensive line of Scientific Model Airplane Co., Newark, N. J. The ship is powered by a glow engine, of course, rather than by the turbo-jet that powers the big job

However, by incorporating considerable sweepback in both main wing and tail surfaces, and by judicious fuselage shaping and forward placement of the cockpit, a decidedly jet-like appearance has been achieved.

Designer Walter Musciano started out with 35 deg. sweepback as on the big Sabre, but test flights showed a certain amount of instability; since the model was intended for beginners as well as the more advanced, the sweepback was reduced to around 20 deg. This gives the desired "fast" look, yet the plane has good performance and is very easy to handle.

The Little Sabre is advertised as flyable with engines from .039 to .074. Engines up to .049 may be considered definitely in the training class, and even with the .049 the ship is very docile and suited for the rank beginner; an .074 is really preferred as the higher power enables quick take-off, moderate speed and good handling. Test planes have been flown extensively with the Cub .099 and this combination should appeal to the more experienced operator. The Little Sabre flies very well with the .099 and a 8/4 prop, and though not intended as a stunter, loops and

vertical eights have been accomplished.

Weight with an .049 and average finishing will be about 4½ oz.

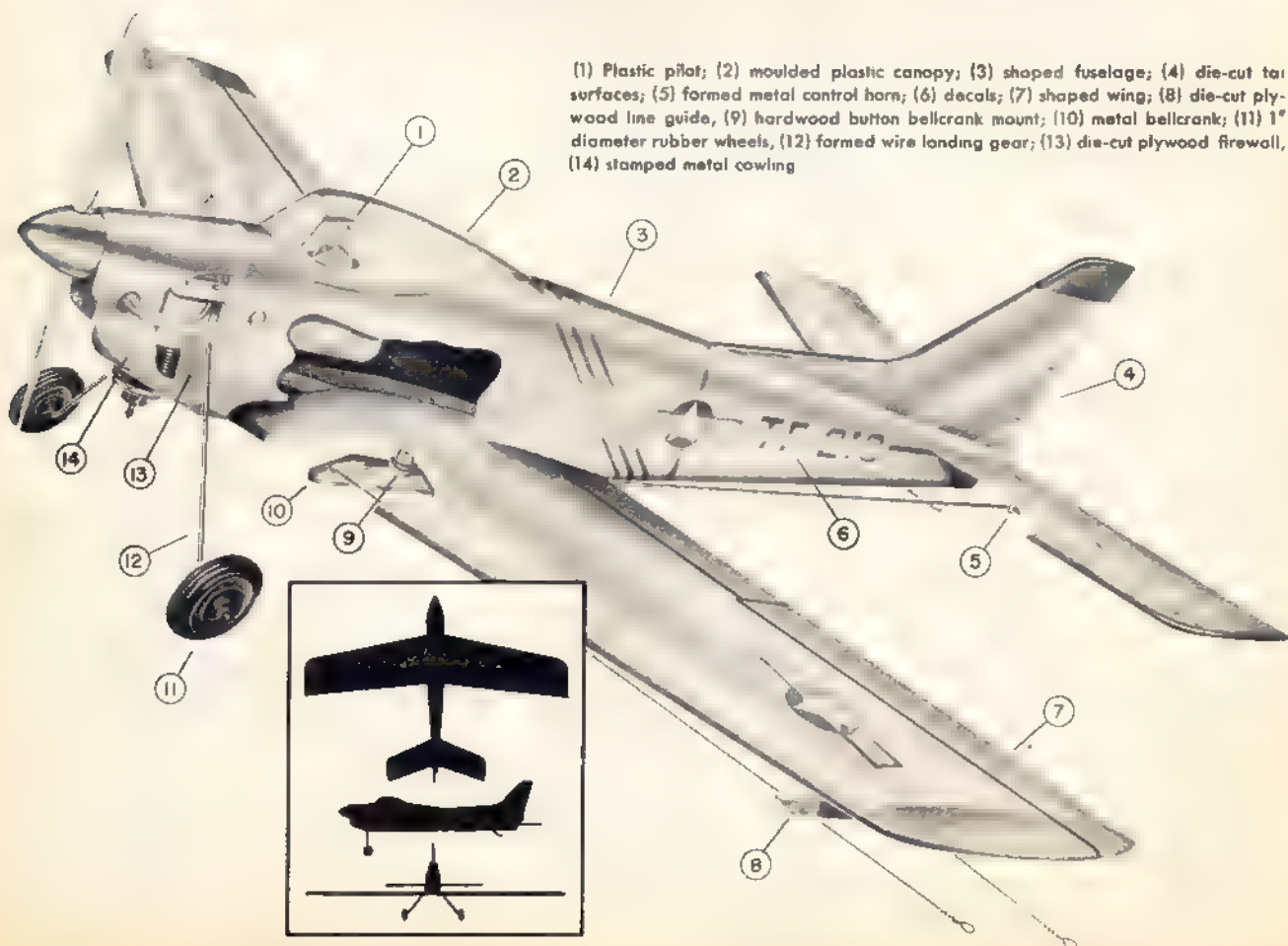
The kit offers a shaped and hollowed fuselage block and a wing cut to planform and to the proper airfoil. The builder has only to cut the wing in half at the center and cement it with the tips swept back to the required angle. Addition of 1/16" die-cut sheet trailing edge completes wing assembly.

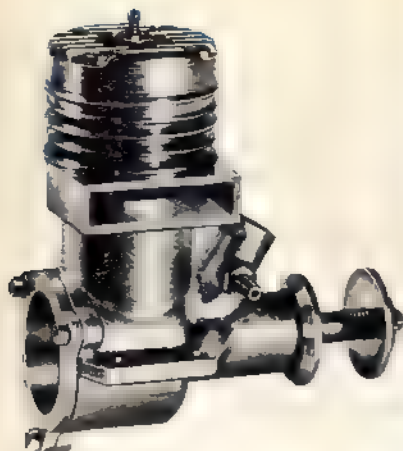
All tail surface parts are die-cut of firm 1/16" sheet. Elevator is intended for fabric hinging, and the kit includes a finished aluminum control horn. Novices will be glad to find an aluminum bellcrank, the necessary pushrod, and full instructions to assemble control system.

Up at the hot end of the plane, construction follows usual Scientific practice; there is a die-cut ply firewall, shaped landing gear wire, and a punched aluminum cowl designed to fit around Cub engines. Wheels are molded of synthetic rubber, with metal inserts for easy turning.

The plan includes six assembly sketches, a full-size side view, and a photo of the finished model.

Looks and flies like a jet job, yet she's an easy model to build and operate with prop engine





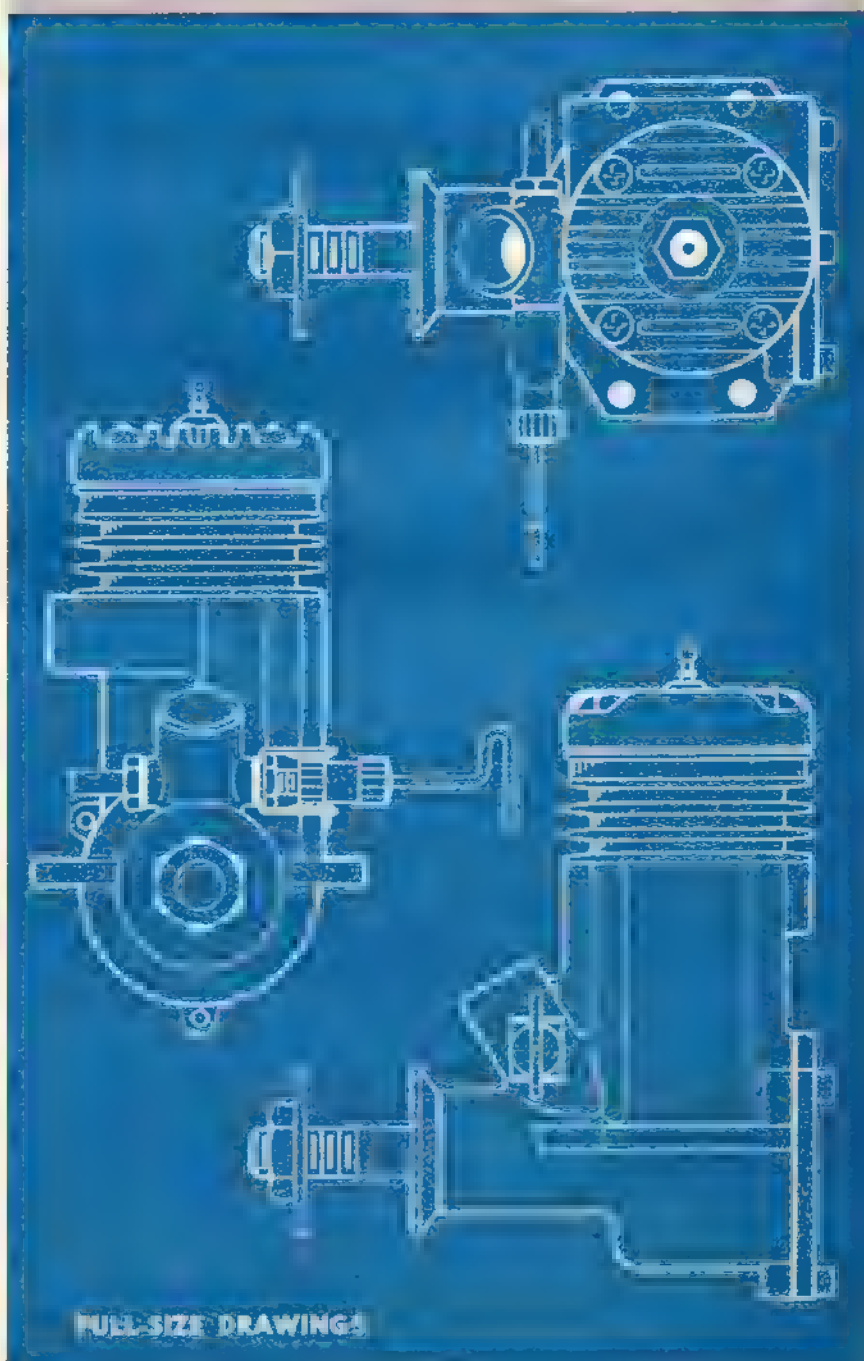
the FOX family

We check out the .29, the .29R and the .35 Fox engines—high power, light weight are features

■ In the past many model airplane engines have started out on the market with a big bang and then slowly dwindled away as people lost interest in them. However, the history of the Fox engine is the opposite. More than two years ago a few Fox .35's showed up in the Eastern part of the country and were discussed at some of the meets, but very little was heard of them until a year later when they started to appear gradually. Today the Fox is one of the most popular sport and stunt engines and is still gaining in interest.

Outstanding features of the Fox are light weight and high power. The Fox .35 weighs one to one and one-half ounces less than most .29 engines and develops the same or more power. Another noteworthy characteristic is the ability to run steady during flight. The figures at the end of this report under engine data listed as Fuel Level Test show according to measurements that the Fox will stand exceptional fuel pressure variations—a most desirable feature. Popular opinion and performance at local meets also show that the Fox is one of the best stunt engines available.

High compression has been a trend in glow plug engines, 8 or $8\frac{1}{2}$ to 1 being quite common. High compression usually means heavier parts. The Fox is different, being in the $5\frac{1}{2}$ or 6 to 1 compression ratio range. This makes (Continued on page 59)



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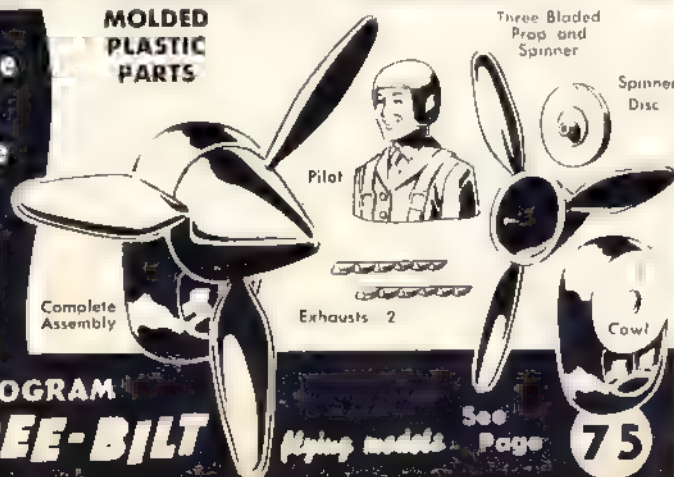
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Spinner
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Exhausts 2

See
Page
75



Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

■ Man, oh, man—what a meet! Referring, of course, to the Dallas Nationals, the second "Nats" held in Texas. In the event you missed it here are some random highlights of the big annual shindig.

Everybody who attended was loud in praise of Maurice Teter, the contest director, and his hard-working crew of Dallas Exchangers. "Maurie" is a real modeler's modeler. He started building plane models back in 1922 and has continued active ever since. In 1948 he was crowned Southwestern Combat Champ and his support of control line combat flying is pretty much responsible, we're told, for Plymouth including it in their 5th International meet.

Mr. Teter is a member of the Dallas Gas Model Association and the Exchange Club of East Dallas. When he can find time to get away from model planes he runs a plumbing contracting business. His wife Irene is quite sympathetic toward his modeling activity—which certainly helps a lot. Maurice has four youngsters ranging from 4 to 13. We asked him his opinion on the worth of aeromodeling and got a very interesting reply which we pass on herewith:

"Model aviation," says M.T., "furnishes year round activity for all ages—and that's doubly important. Young and old participate and it's not just a seasonal sport. The younger modeler quickly learns that the time spent in reading the many articles on modeling, plus the association in organized clubs and contests pays off for him in the performance of his own models. Through these contacts he learns to plan his project and learns the value of careful study of detail before actually beginning construction. The young modeler quickly realizes that the failure to complete each project before beginning on some new undertaking results in confusion and unpreparedness for the coming flying season. These two qualities of character, advanced logical (Continued on page 58)

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This model made top outdoor rubber time at Nats; Henry A. Cole, Jr.'s long-fuse entry. His 15:00.9 in Unlimited Rubber was 1:42.1 higher than next (in Wakefield).

(Continued from page 54)

thinking and the desire to complete the problem at hand, are probably the most important and most valuable assets obtained by youngsters in aeromodeling. It naturally follows that competition in governed contests develops sportsmanship of the highest order.

"Craftsmanship," he continues, "learned from the construction of intricate and precise models remains as a lifelong asset. The proof of the skill, study and knowledge lies in the actual flying of the model and there is no greater satisfaction than seeing the product of one's own creative efforts carried to a successful completion."

"As the modeler advances in years he becomes aware of the many formerly unseen services rendered by sponsors and leaders and he in turn accepts some of these responsibilities, thus learning something about promotional and administrative problems. The sponsors of model airplane activities usually are men successful in business and their cooperation as advisers to these embryo leaders furnishes practical solution of problems which are applicable to those problems encountered in life."

"The real fun in aeromodeling is derived from the association with others in the informal sport flying sessions and the resulting competition in contests. The comradeship developed in the exchange of ideas and solutions of common problem often leads to lasting friendships and the realization that cooperation and association lead to success and happiness."

Friend Teter—we bow low. Nobody could have said it better. And, fellows, we know you'll join with us in saluting Maurice Teter as "Modelplane Contest Director of the Year!"

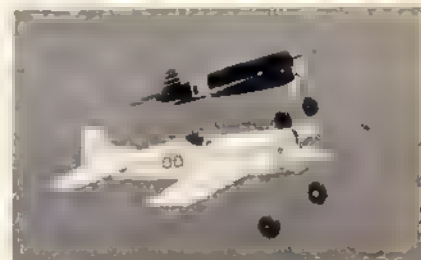
Also Aiding. Along with hundreds of Dallas Exchangers, Navy personnel and members of the AMA, these gentlemen did a bang-up job at the '51 Nationals; big, burly, handsome, genial Ernest Donohoo, assistant C.D.; John "Red" Hilligas, Cleveland, free flight director; Keith Storey, Pasadena, Cal., v.p. in charge of control flying; George Gardner and

Dallas Sherman, the PAA-Load pair; Earl Witt, Tacoma, Wash., precision aerobatics pres.; Harry D. McCall, Cleveland, chief ROW'er; Bill Ostenberg, flying scale chief, and Ray Matthews who handled the indoor events. Special recognition goes to Gene Foxworthy, Indianapolis, who came to compete in R/C, but stayed to run the event when the original director was unable to make it.

AMA President Ken Held conducted the Academy's annual meeting in excellent style; Matthews, as contest board chairman, ran the open C.B. session. Russell Nichols, AMA executive director, was a tower of strength to the Navy, Exchange, and hundreds of flyers. John Burton from the Navy's offices in the Pentagon conducted the carrier event and supervised the bomb-dropping R/C affair and was nicely rewarded by being promoted from Lieutenant to Lt. Commander during the competition. As in many big meets, there were hundreds of unsung heroes, but as Capt. Hugh Nieman, commanding officer of the Dallas Naval Air Station, where the meet was held, put it—it was the contestants themselves who made the thing possible by traveling so far and being such good guests "aboard" the station.

Special Awards. USN's (Long) John Burton and AJ's (Jumpin') Jim Walker received the Berkeley Awards this year for the greatest contribution to model aviation. John got it in the non-industry division for doing so much in bringing the Navy and the model builders together; Jim received his as a member of the modelplane industry in recognition of his magnificent gesture in providing transportation for the '51 U.S. Wakefield team to Finland. As a departure from the usual chronographs which Berkeley Bill Effinger, Jr., presents, this year the recipients were awarded ladies' watches which were for the respective wives—in recognition of Mrs. B and Mrs. W putting up with so much modeling talk at home and permitting their respective spouses to spend so much time on model matters rather than washing windows, etc.

Dick Everett brain-stormed a grand idea resulting in the presentation of two plaques, one to C.O. Wright, ex-AMA president and the never-discouraged free flyer from Topeka, Kan., and the other to Jim



National meet team race was won by Bob Luther's entry (black) shown here with model flown by B. R. Daniel, also of Ft. Worth. Event had few entries, but boys did O.K.



Harry J. Fiegel, Texas City, Texas, flew this Class D entry to first place in Junior category. He used a McCoy .60 and racked up speed of 148.88 to beat Senior and Open.

Walker. Contributions for the cost of the plaques came from many model builders. Both inscriptions were short, and couldn't have been sweeter; "Thanks, C.O.—The Gang, 1951." Jim's read: "Thanks, Jim, etc." These two lovable characters have done so much for modeling that such recognition was long past due.

Big Shots Big News. The appearance of some top Navy brass at the meet did a great deal to publicize the contest in particular and model aviation in general. As an indication of the importance it attaches to air-modeling, the Navy's Secretary for Air, John F. Floberg, flew down to the meet from Washington accompanied by Rear Admiral Thomas S. Combs, chief of the Navy Bureau of Aeronautics, Rear Admiral Robert F. Hickey, the Navy's chief of information, and a certain well-known USNR Commander—Arthur Godfrey.

The contestants got a big kick out of Godfrey. He flew Jim Walker's 1st place R/C job with signal success (ouch, that pun!) and judged the Testor Best Finish-Beauty competition. He interrupted his vacation from radio and television work to appear at the meet. Godfrey's interest in areomodeling is nothing new and was evidenced at the start of World War II when he did a great deal to get NAA's Junior Air Reserve off to a good start. Arthur indicated to AMA's Russ Nichols that he'd like to provide some awards at future Nats.

Cutlass Challenges Comparison. Big star in the Navy's ground exhibit was a new Cutlass from the near-by Chance-Vought plant at Grand Prairie, Tex. Many an "oh" and "ah" was heard from the contestants and spectators as they looked this flying wing beauty over. But this was nothing compared to the amazement of all when one of the fighting beauties flew over the field on several occasions. Obviously, the Navy has a real "gone" airplane in the Cutlass and the assembled model builders seemed to be the first to appreciate that fact.

Another exciting incident was when the Air Force flew a B-36 across the field on the final day of the meet. Of course, it must have been higher, but the mammoth flying machine looked about 50 feet off the ground to us. Two-thirds the way across the (Continued on page 72)

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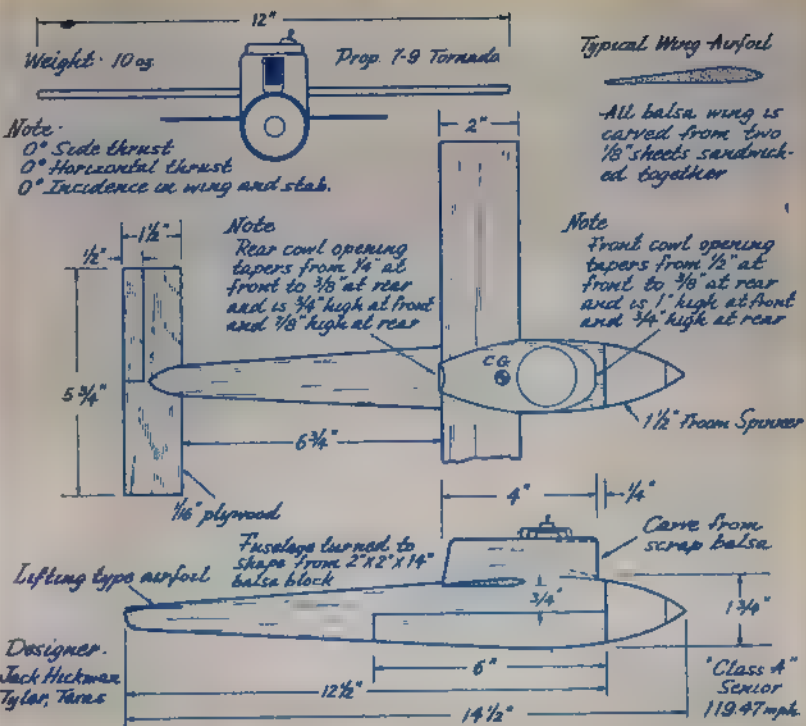
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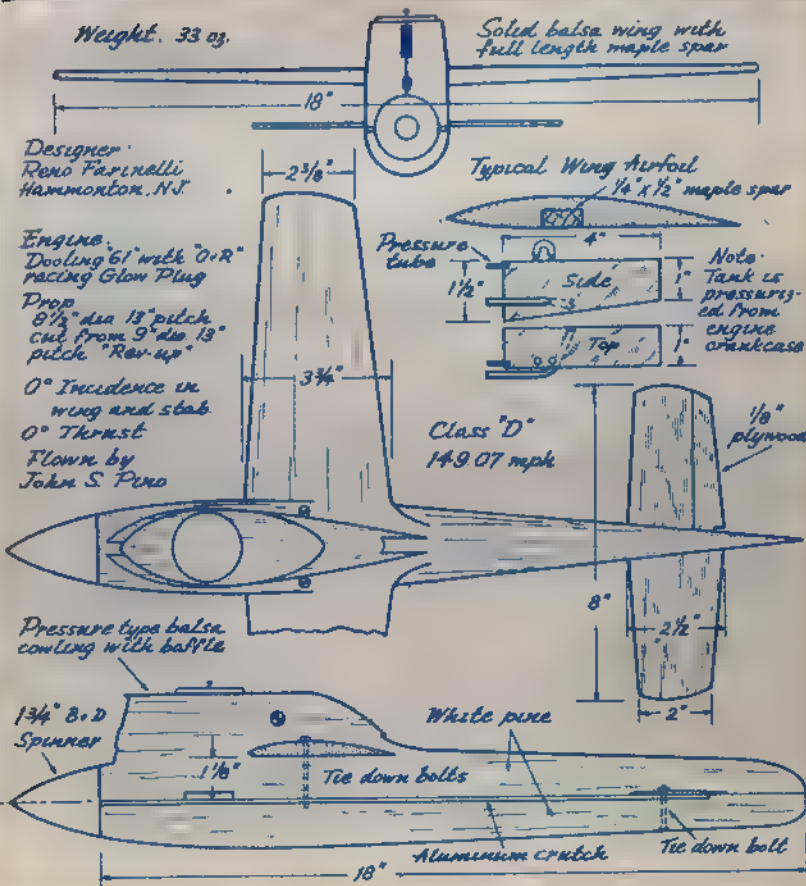
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RECORD REVIEW:

Here are a pair of record-setting control line speed jobs which topped their class during the flying season last year. Jack Hickmon's mark was made in Texas; John S. Pino, Jr., Hammonden, N. J. set his record with a model designed by Reno Farinelli.



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Fox

(Continued from page 52)

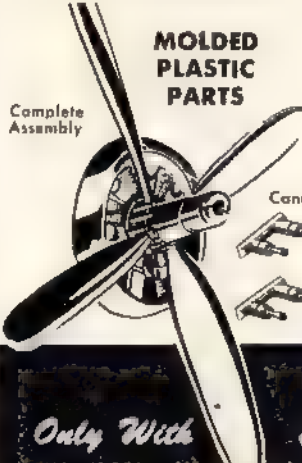
it possible to build a lightweight engine, but usually the low compression causes inconsistent burning of the fuel mixture in the cylinder. In the Fox this difficulty is overcome by having the cylinder head run at high temperature to increase the tendency of the fuel to burn. This high head temperature is the result of approximately thirty percent less cooling area on the cylinder head as compared to most other .29 displacement engines.

Low compression has another advantage in this engine in reducing the vibration and the hard kickback characteristic of high compression engines when starting. This makes it possible to use the Fox in a model having lighter motor mounts and nose structure.


All three Fox engines have a piston and cylinder liner made of Meehanite or fine grain cast iron. The liner is encased in an aluminum housing and this allows the piston and cylinder to operate at approximately the same temperature when the engine is running. With even heat and the same material, the piston and cylinder expand the same

amount and maintain the close fit necessary for good power. This equal expansion gives a good compression seal at any temperature, aids starting


The Fox .29 and .35 could very well be used in any type of model, either free flight or control line, but they are most outstanding when applied to con-



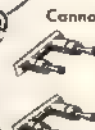
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Pilot



Four Bladed Prop



Cannon .21



Cowl

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See Page **75**

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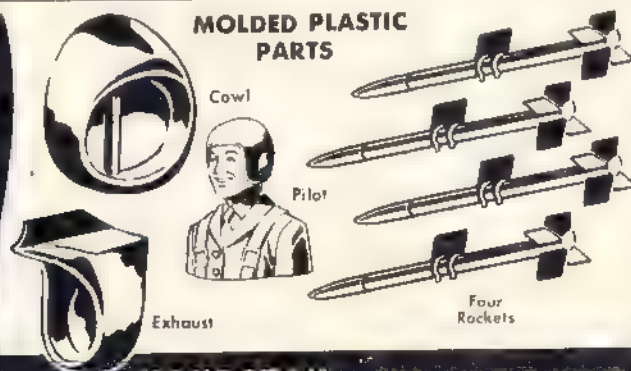
See
Page

75

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Exhaust

Four
Rockets

MONOGRAM

control line stunt. On the other hand, the .29 racing special (.29R) is not at all suited to free flight, sport or stunt flying. This engine will not run steady on large propellers. At speeds below 15,000 rpm the engine is hard to start and will stop very abruptly for no apparent reason. At 15,000 rpm or higher the .29R will run very steady and is not sensitive to needle valve adjustment.

Low compression ratio is also a help in this engine. The engine tested was started easily on a 7/6 wobb propeller with very thin blades without breaking any propellers. High compression racing engines usually kick back so violently that it is sometimes hard to hand-start the engine without breaking the prop. The test figures under Engine Data show a fuel level test of twelve inches, which is extremely high for a speed type engine, indicating that it would be easy to maintain a good needle valve adjustment for speed flying.

The engine test was started by breaking in all three engines in the low speed range: 10,000 rpm for the .29 and .35, and 12,000 rpm for the .29R. The .35 was still tight and running was continued on this engine for four hours before starting the test. This was due to a slight difference in the fit when the engines were built. Starting was very easy on the .29 and .35 at all times. The .29R was difficult to start at low speed as could be expected.

Different fuel mixtures were tested in all the engines and changing from an average mixture to a high-priced, highly nitrated racing fuel showed no gain in power in the .29 and .35 engine, but produced considerable gain in rpm in the .29R at speeds above 15,000 rpm. The 18,500 rpm recorded in the engine data was run with a racing fuel mixture.

ENGINE DATA

Fox .35

Performance. Weight: 6.04 oz. Propellers: 10/6—9,500 rpm; 9/7—10,000 rpm; 9/8—11,000 rpm; 8/8—12,000; 7/9—14,000 rpm; 8/6—14,400 rpm. Fuel: Develops maximum power on average blends. Fuel level test: 15" at 10,000 rpm.

Design Data. Displacement: .35 cu. in. Class C. Stroke: .700 Bore: .800 Stroke bore ratio: .875. Compression ratio head: 5.8. Compression ratio base: 1.43. Port area intake: .053 sq. in. Bypass: .072 sq. in. Exhaust: .110 sq. in. Ignition: Ohlsson racing plug.

Construction Features. Bearings: crankshaft—bronze bushing; crankpin—aluminum; wrist pin—aluminum. Engine is assembled by dropping piston and connecting rod through cylinder.

Fox .29

Performance. Weight: 6.1 oz. Propellers: 10/6—9,000 rpm; 9/7—9,500 rpm; 9/6—10,100 rpm; 8/8—11,000 rpm; 8/6—14,000 rpm. Fuel: Average blends give full power. Fuel level test: 15" at 9,500 rpm.

Design Data. Displacement: .29. Class: B. Stroke: .700. Bore: .738 Stroke bore ratio: .95. Compression ratio head: 6.5. Compression ratio base: 1.38. Port area intake: .053 sq. in. Bypass: .072 sq. in. Exhaust: .101 sq. in. Ignition: Ohlsson racing plug.

Construction Features. Same as .35 displacement. Cylinder liner, piston, wrist pin and cylinder head only parts different between .29 and .35.

Fox .29 Racing Special

Performance. Weight: 6.0 oz. Propellers: 9/6—10,600 rpm; 8/8—12,000 rpm; 8/6—15,200 rpm; 7/9—15,100 rpm; 7/6—18,500. Fuel: Hot racing fuel gives more rpm at speeds above 15,000 rpm. Fuel level test: 12" at 15,000 rpm.

Design Data. Displacement, class, stroke, bore, stroke bore ratio: same as Fox .29. Compression ratio head: 6.2. Compression ratio base: 1.37. Port area intake: .083 sq. in. Bypass: .088 sq. in. Exhaust: .145 sq. in. Ignition: Requires cold plug at high rpm.

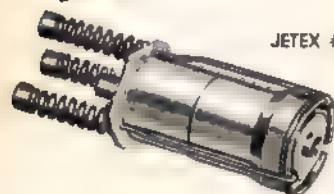
Construction Features. Same as .29, except main bearing has Meehanite (Continued on page 81)

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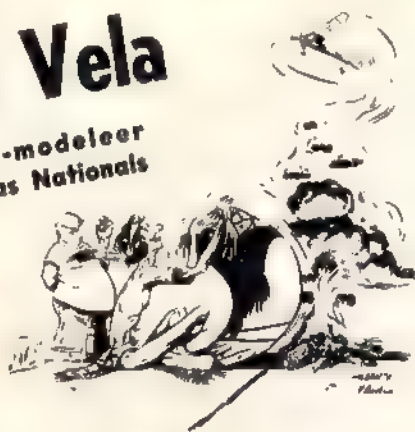
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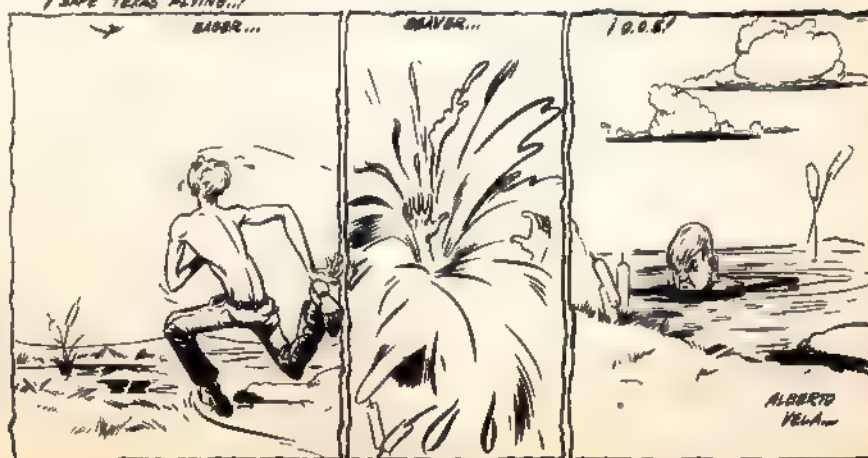
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ROG-ROW

(Continued from page 38)

using #13 bulkheads to center it. Check for trueness while cement is drying.

Before covering the top of fuselage, cement cargo tubes in place. First cut four holes on top covering. Using these holes as a guide, position tube in place. Be sure to coat bottom of the tubes with cement so that they will stay in place. After the cement has dried, remove the top and spread cement all around the bottom portion of tubes where they touch bottom sheet. You can now cement top portion. Coat top of tubes before slipping top over them. Press top in place, and let cement set well before finishing the rest.

Place the fuselage aside without covering front portion. After stabilizer is completed, including the covering, you can check for C.G. as mentioned. Note that grain of the nose covering is cross-wise.

Cut required number of wing ribs from 1/16" stock. Shape and notch leading and trailing edges as shown. Notching can be easily done by taping two hacksaws together and using them as one. Cut 1/8" deep for wing and 3/32" for stabilizer.

Assemble the wing. Use gussets to maintain required dihedral as well as strengthen the joints. You will have to cut the rib to fit the gusset on front spars. Tips are now added. If you use triangular stock as shown, the tip outline will automatically form as you cut the stock to top airfoil shape.

The center two ribs are spaced 3/16" to sandwich the engine cabane. The center four ribs are trimmed 1/16" from the top to accept 1/16" balsa sheet covering as shown. Covering is done after the cabane is in place.

Stabilizer is made in similar manner as wing. Note that center top is covered with 1/32" sheet. Also, at the tips, fill in with 1/16" sheet to provide base for the dress snaps which hold the tip floats in place.

The stabilizer platform can now be cemented to bottom of fuselage. Use stabilizer to hold it in place while cement is drying. This will make the platform conform to the stabilizer airfoil.

The first step with the motor cabane is to make two side formers. This is done by making a temporary 3/16" thick streamlined filler. Cement firewall in front, and then two side blocks. Cut and carve the blocks to streamlined shape, using the firewall as a guide in front. Break this unit apart. Make the cabane outline and cement firewall and the two streamlined formers in place. Be generous with the cement as this is the main motor support.

Cement the above assembly to the wing between the two center ribs. Apply several coats of cement all over after the first has thoroughly dried. Check for line-up. Then cement the 1/16" sheet covering as shown.

Cover with Silkspar. Add a few drops of castor oil to the dope to prevent warping. Dope the entire model until it sheds water. This can be best determined by spilling water on the surface. It should roll in drops as though the surface was waxed. If the model is not doped enough, the water will soak into it. Fuel proof the model. Again be generous around the motor cabane as the fuel will naturally splatter this area.

An eyedropper is used for the gas tank. It simplifies the problem: it is a good visual indicator, and does not hold very much so that the motor run is definitely limited. Being a sport model and underpowered, ten seconds of motor run more or less will not be a calamity.

If you feel you have done enough work so far, you can take the model out for a test flight before making the pontoons. If the fuselage was balanced as advised, the C. G. will be about where shown when your wing is added. Test-glide over tall grass and note the characteristics.

If the model has a slight stalling or

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diving tendency, it can be corrected with a slight stabilizer adjustment. But if the tendency is strong, it is best to correct it by shifting the C.G. This is easily done by placing clay in the proper cargo tube: front for stall and rear for dive.

Since this is a large model for the motor used, glide adjustments will do for power. As long as the model flies in large circles, you should have no spiral stability problems. If you have, better check for warps. Remove them. Do not try to overcome warps with side thrust or rudder adjustments.

Pontoons are made in same manner as fuselage. Cut sides to full-size pattern, cement bulkheads in place, and cover top and bottom. Note the grain, and that 3/32" stock is used on the main pontoon, and 1/16" on the stabilizer floats. Cover front portion with several segments as the curve is too sharp for bending sheets.

As you can see, the use of dress snaps makes for quick and easy assembly. The problem is how to fix the snaps so that they will not pull loose. The best method is to prepare a piece of cloth or Nylon by soaking it in cement, and then spreading it smoothly over glass. Let it dry well before peeling it loose.

Sew the snaps to the cement-cloth and spread cement over the thread. Let it dry. Then cement the cloth-snap units to the fuselage and stabilizer tips. All snaps should be pre-worked so that they come apart smoothly and easily. As you can see, the take-off and landing forces are of shear type. Therefore, the snaps can be loose-fit. If they are tight, you are liable to pull off the cloth when removing the pontoons.

After the cement has dried well on the fuselage snaps, press their mates in place. Coat with cement and position pontoons against them. Make sure of true line-up. Let cement set well. Now, take a razor blade and run it all around the snap to cut possible cement layers.

(Continued on page 66)

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Western Roundupper Dick Everett with his modified Cumulus at Nationals. Dick added 12 in. more to wing, used larger stab. In Half-A free flight, he took first with time of 22:05.0.



■ The Redondo Beach Jr. Chamber of Commerce, profiting admirably from past contests, put on a real good U-control meet. In the way of events, they had every one in the books, all classes of speed and jet, stunt, flying scale and team racers.

The contest was very well run with a first-rate P. A. system to keep everyone on his toes. They used two circles for stunt, one more for speed, another for the team racers, and still another for practice. Plenty of room for everyone. About the only gripe we heard was in connection with the dusty speed circle.

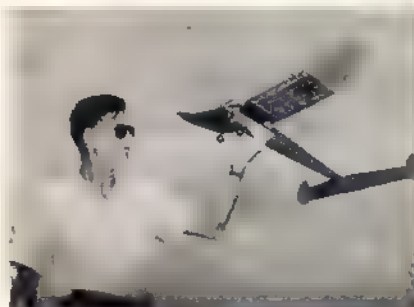
One very discouraging item in the contest was the lack of pull tests for the models. The speed judges, though, were thoroughly protected by a

baseball batting practice screen.

Two fellows fell down while flying, through no fault of their own, one accident proving humorous and the other quite sad. Cliff Potts stumbled over a stone while flying in the finals of the team racing; he scrambled around on hands and heels three and a half laps before regaining his feet, then went on to win. The disastrous one happened to Jim Devitt's wonderful F4U. Jim tripped over a tarp placed on the ground for the fellows to stand on. The plane dove into the deck, smashing him out of the carrier deck event at the Nats.

Continuing the trend to realistic ships, Bob Palmer's latest designs made their appearance. The one Bob flew to 1st place he calls the "Smoothie." Span is 52 in., wing area 480 sq. in., weight 2 lb. 6 oz. Power. Veco 29. Elliptical silked wing and tail, inverted cowled engine, tryke gear, M. E. type cockpit with helmeted pilot and instrumented panel. The other ship he hadn't named but it looked very much like a midwing Vega. N.A.C.A. cowl and everything. Both ships flew very clean and a little faster than his other designs. Bob is no longer working for Veco, his new job being in Lockheed's Model Shop as a model builder.

Dick and Zip Grandel were on hand with two five and one-half year-old Duroplanes, Mac 49 and



Bob Wiehle from L.A. had this slick Half-A PAA-Load named "Haf-Pay," at Dallas. Wasp power; looked as nice as Bob's other free flight entries which got top attention.



Dick Sladek, of whom you've read here, made successful tow in Nationals' Tow-Load experimental event. Didn't quite reach required 40 sec., release mechanism hung up.

Dooling 61 powered. The ships were standard except for cut-down wings. Very beautifully finished, they were up and down with a minimum of trouble. Another deviation from standard was noted in their dollies which had weight on the inside axles to keep them from sliding out on concrete and asphalt.

Zip told us of the passing of T. H. Rhoades who made those famous Duroplanes. Tommy died of a heart attack a short time ago and Dick and Zip brought out those old ships in memory of him.

No matter how many contests we attend, we find ourselves reminded of the old saying: "Once a model builder always a model builder." Don Yearout, Charles Bruce and Henry Mullen are just three of these

When the 188th National Guard fighter squadron was activated in Albuquerque recently, the trio bundled up all their engines and a couple of models and brought their gear with them. Work space seems to be any space available, the only difficulty being the numerous inspections that are pulled. Sometimes severe frowns are seen on the officers pulling the inspections but—the building continues. Don captured a first in jet at the contest against some pretty fair competition. He also was the recipient of the best crack-up award, a rather dubious honor, when his Fox 59 stunt job shed its tail in flight, due to a fractured stab which didn't seem too bad prior to the flight.

Mrs. Violet Hoyt pulled a fast one on the fellows by winning C speed and second in jet. She was first in jet for almost the entire contest until Don got off for his fast flight. Violet showed us some fancy sane flying when a rough gust hit her D speed job on take-off, throwing it up and in on her. How she managed to right it with some fast back peddling and even faster controlling we will never understand. But she did, and got some real applause from the boys.

A rash of fountain pen balloon tanks made their appearance at this meet due to the excellent "AT" article by Bill Wisniewski. Without exception, however, the guys had trouble. This was attributed a great deal to (Continued on page 67)



Bill Kreck, Van Nuys, Calif., had this splendid Folke-Wulf "Stosser" in Nats-rubber scale meet. Construction time, 700 hrs. 288 sq. in.; 15 oz. wt.; 46.75 in. long.



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See Page **75**

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(Continued from page 63)

which may have joined the top and bottom. Then use a knife blade to pry them apart.

R.O.W. flying: Re-check for glide in tall grass. When glide is smooth, you are ready for R.O.W. Face the wind, and let the model go. It should make a straight into the wind take-off. Make the initial test flights on a calm day so that you can observe the model more easily.

Mailplane

(Continued from page 34)

water the tissue lightly. When thoroughly dry and taut, the covering should receive two coats of plasticized dope (three drops of castor oil to each ounce of dope).

Repeat this procedure for the other side of stabilizer. Dope should be very thin. The vertical fin is very soft 1/16" sheet balsa sanded smooth. Cement stabilizer to the fuselage at the correct incidence angle; follow with the vertical fin which is cemented to both the fuselage and stabilizer. The tail bracing and thread rigging are added at this time to prevent the empenage surfaces from warping out of shape.

(Further construction details may be found on the full-size plans available.)

Rubber-Powered Douglas M-2

Those modelers who have cultivated a taste for the absorbing sport of rubber-powered flying scale models will be quick to recognize the basic requirements for rubber jobs in our Douglas Mailplane. The long nose is one of these outstanding requirements. Using a 3/16" dia. birch dowel as the motor rear anchor and 1/16" wire for the propeller shaft spinning a 9 3/4" dia., 2" wide blade propeller, the M-2 should turn in some sensational flights.

The rear rubber motor anchor should be located 1/8" above the fuselage centerline and 3/8" forward of former "F"; this setting will automatically result in downthrust without the usual shaft vibrations. Twelve strands of 1/4" flat T-56 rubber with slack should do the trick as far as power is concerned. It is suggested that the structure be lightened somewhat for rubber power, use 1/8" square spars and sand the 1/16" ribs to about 1/32" plus; wing tips can be 3/32" sheet while the basic fuselage sides can be cut from firm 1/32" sheet balsa.

Needless to say, colored dope should not be used and by all means use a ball-bearing propeller washer and lubricate that rubber!

Bill of Materials

Fuselage. 1 pc 1/16" x 3" x 36" medium balsa, sides & formers. 1 pc 1/32" x 3" x 18" soft balsa, top & bottom. 1 pc 3/8" x 2" x 8" soft balsa, nose block & nose bottom. 1 pc 1/16" x 1/16" x 36" rock-hard balsa, turtledeck stringers. 1 pc 1/8" x 2" x 2 1/2" plywood, bulkhead engine mount.

Wings. 4 pcs 1/8" x 1/4" x 36" medium balsa, spars & struts. 1 pc 1/16" x 2" x 36" medium balsa, ribs. 1 pc 3/8" x 2" x 18" medium balsa, tips & ribs. 2 pc 1/8" x 1/2" x 36" medium balsa, trailing edge. 1 pc 1/32" x 2" x 24" soft balsa, center section covering. 2 pc 1/8" x 1/4" x 36" medium balsa, leading edge, auxiliary spars.

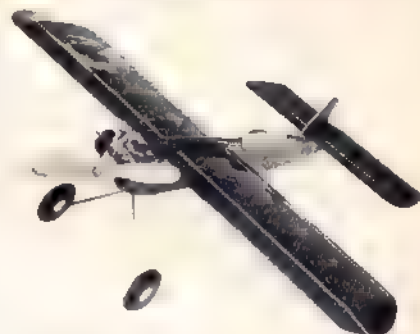
Tail. 1 1/2 pc 1/8" x 1/4" x 36" medium balsa, structure. 1 pc 1/8" x 4" x 2" medium balsa, tips. 1 pc 1/8" x 3/4" x 18" medium balsa, trailing edge.

Miscellaneous. Tissue or light Silkspar, clear dope, colored Testor's dope, Tuff fuel proofer, Trim Film, cement, thread, brushes, sandpaper, .025" music wire 36" long, screws, Maeco tank



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(AT-11-51)

Western

(Continued from page 65)

weather since leaning-out trouble was a plague. On Chuck Schuette's winning B flight the ship was jumping so much in the dolly that everyone expressed amazement he even got off. Nevertheless, the engine came in for a very good flight.

Jerry Straw kind of monopolized speed with a first in A and B and second places in B and C.

S. Estrada as per usual won 1st in flying scale with that Navion, Jim Devitt was second with his F4U. Barry Robertson won Jr. scale.

The Western Association Modelers sure keep busy, having contests, improving rules making model flying safer, etc. For 1952 all team flying must be done in a counter-clockwise direction. Woodie Underwood, who has evidently been flying clockwise, recently made the following report: "I gave it a fair try. It costs money." Nuff sed.

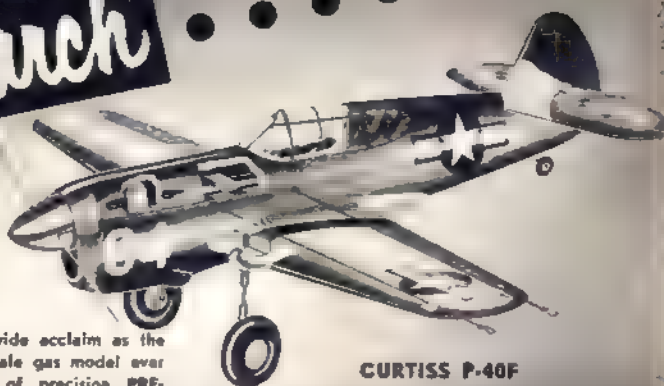
In an effort to promote safety, the W.A.M. have added a new rule which will make the fellows more conscious of what they are doing, to wit: "No model airplane, glider or gas motor powered model airplane shall be launched in free flight less than 200 feet from the nearest automobile, building, or spectator area" This is a rule which we would all do well to adopt, since everyone has seen those hazardous flights that so many modelers thoughtlessly launch.

The 1951 Nats are now a thing of the past. The Western fellows, lacking in number from the showing they made in previous meets, garnered a few trophies and as usual showed up with some newcomers who are really tops. Jan Lowe from San Diego and Don Tune from L. A. are two juniors who managed to bring back a crate full of trophies. Bob Brawner from Phoenix flew four models and won two firsts and two thirds, setting a National Record in H/L glider.

Joe Bulgri and Hank Cole traded firsts in rubber, flying those "Long John" Wakefields designed by Hank. You who were at the Nats and who saw these ships in flight were probably amazed at them. True, they are a little on the fragile side, but man, oh man, what performance. Manny Andrade won 7th in the Wakefield finals with this design, having three out-of-sight flights.

Your correspondent won tow line with the longest ship at the meet, 8 foot in spread, even though the ship was 16 ounces overweight. We also managed to show our heels to the rest of the gang in Half-A when our Torp .049 job totaled 22:06. We used a B and B timer tank on the Torp by cutting the crankcase protrusion off, adding an extra gasket and plate, then drilling one new hole in the Torp mounting plate to line up the tank with one of the holes already in it.

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Wayne Schindler's little semi-midwing radio job using an Ohlsson 19 and the Citizens band R/C unit did a rather remarkable job at one channel operation by totaling 232 points. It was quite amusing to watch Wayne and Jack Block each evening figuring the best way possible to put in flight time the next day in order to get the most number of points. We are still trying to figure out how Wayne got shoved down into fourth place after a field announcement that he was second. Needless to say, he was very discouraged.

Lew Mahieu managed to make himself heard in speed after a disastrous attempt at ROW with an untested model. His newest design shows a lot of originality and is very clean and simple.

Gene Stiles and the northern contingent were observed to have some tough luck in Class B speed. Gene's ship threw part of a blade on the take-off and was vibrating badly. Gene put the ship through some violent controls endeavoring to cut the engine before the stab vibrated loose, but to no avail; result—a bad crash.

Jim Devitt burned a lot of midnight oil on his A-20 while at the air station readying it for the flying scale event. He washed out his F4U completely while engaging in a streamer cutting exhibition.

A big disappointment to our Western buddies was our 2-second overrun in PAA load on a 4:57 flight which would have won the event and cinched the Open championship. Sal Taibi came back in a big way with some new designs which sure fly. Sal and his wife Nan, who are now full-fledged Westerners, put on some real teamwork. Sal's timer was running over, so Nan stood by with a stopwatch. Sal would release the timer and put the model on the ground, and when the necessary time had elapsed Nan would tap him on the shoulder and Sal would release the model; it worked to perfection. Sal outthought himself in the ROW event. After building up high time for two flights he sat around and waited for someone to beat him. Late in the afternoon someone did. Sal got kind of nervous after that and pulled a complete 90 degree crosswind take-off, but couldn't get any help.

Bill Kreczek's beautiful Focke Wulf Stosser which had amassed the highest points for workmanship and detail was damaged after the contest. But what a sweet ship!

Of all the events at the Nats the fellows picked the ROW and Radio Control for their Roundup. Don Lutz beat out Sal Taibi and Don Tune in the off-water event, while in R/C Jim Walker amassed the highest number of points ever in making a near-walkaway out of this engagement. Howard Bonner, Bill Butler and Wayne Schindler followed in that order, all closely bunched.

Don Tune, a protégé of Jack Block, proved to be our top Junior flyer but fell down in the final standing due to

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the crowded schedule on indoor day. Don won three firsts, Half-A Wakefield and the indoor glider, was second in Unlimited Rubber and finished 3rd to all age classes in ROW. That's pretty good flying.

Bob Ottoman of Medford, Ore., had some very unusual ships at the meet, aptly called "Flatops" since all the rudder was on the bottom. He did all right, too, turning in some very good flights; more on these ships and Bob later when we can furnish exact details.

A week after the Nats the boys got together for a ROW contest at Puddingstone Dam. Don Tune showed his heels to the rest of the gang by walking off with high time and first place. That boy is hot. Wayne Schindler made a last-minute conversion to his Half-A R/C job, turning it into what he considered a sport model. However, the only sporting thing about it was a 9 minute O.O.S. flight while the contest jobs were going up and coming down.

Big Item: The All Western Open will be held Oct. 13 and 14th in Los Angeles. This year because of the lack of a flying site there will be no indoor events—too bad. The outdoor H/L glider, towline glider and unlimited rubber events will be held due west of the International Airport on the new extended runway on Saturday the 13th. On Sunday the combined F/F gas event, the U-Control Stunt and special events. The F/F event at Sepulveda Basin, the U-Control at some unannounced site. For further details contact the L. A. Jr. C. C.

—DICK EVERETT

Armed Gnats

(Continued from page 21)

35 inch rocket—capable of knocking out a tank or gun position—weighs only 80 lbs. A liaison plane can carry several of them. Napalm bombs come in various sizes and can be made up from old drop-type fuel tanks. For close ground work in forward areas, small containers of this canned hell weighing only a hundred pounds or so can do terrific damage, and several bombs can be carried by the larger aircraft the Army already operates.

These changes in tactical tricks resulting from more powerful but lighter weapons mean that even present-day Army aircraft can be adapted to carry them, in spite of not having been specifically designed to do so. Naturally the larger Army planes now in service can carry the more worthwhile load. For example, the Navion L-17 and the new LC-126 (Cessna 195) can carry several hundred pounds of fighting armament. But Army is not stopping here. They have their eye on Beech's low-wing Twin Bonanza and the Aero Commander twin-engine high-wing

(Continued on page 72)



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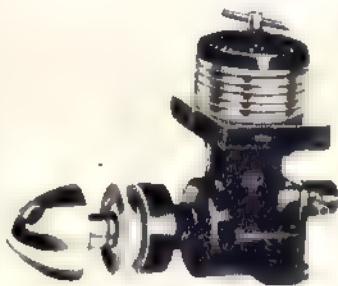
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George Perryman, U. S. team captain, with polyhedral wing-stab job.

SWEDEN WINS WAKEFIELD

By **C. S. RUSHBROOKE**

■ Prophesying about the weather has always been an unprofitable occupation, and this year's Wakefield Contest—held for the second year in succession at Jami-Jarvi, Finland—emphasized the importance of allowing for whims of the Clerk of the Weather at all times.

Experience in 1950 indicated that the event would be held under calm, non-thermal conditions, for statistics showed that such weather can usually be relied on at Jami-Jarvi in July. But 1951 saw fit to confound all forecasts, and the event was held under dull and threatening skies, with very noticeable drift and occasional pockets of lift. Scheduled times had to be varied both on the Saturday evening and again on the Sunday morning, and the eagerly anticipated six-hour break for sleep between the second and third rounds was cut in half in an endeavor to

beat the high wind and rain promised for the early part of July 8.

Preference for the return-gear system appeared to be evenly divided, and the majority of models



The winner and new champ! Sune Stork flying on Swedish team won cup with 705.2 sec.

showed a preponderance of even chord wings and tailplanes; flat center-sections and swept-up tips being the most popular layout. Both the American and Swedish machines were beautifully constructed, and Aarne Ellila showed his usual fine workmanship on a craft that differed little in general layout from his 1950 winner. Fuselage had been lengthened and incidence settings of 7 degrees wing and 3 degrees tail were used, with a prop setting of considerable side-thrust and up-thrust. A no-spar wing was featured this time, but this produced troubles when the machine was being photographed, for a strong gust broke the wing in three places, giving Ellila some hectic repairing to carry out.

C. Hagelstam, the hard-working and astute Contest Chief, briefed all competitors three hours before the start of the contest, making his announcements in both English and



Joe Foster, Jr., San Jose, Cal., with "Pogo Stick" was the first man off in '51 meet.



Ted Evans holds as Tubbs of G. B. winds entry that placed Tubbs 2nd with 676.2 sec.

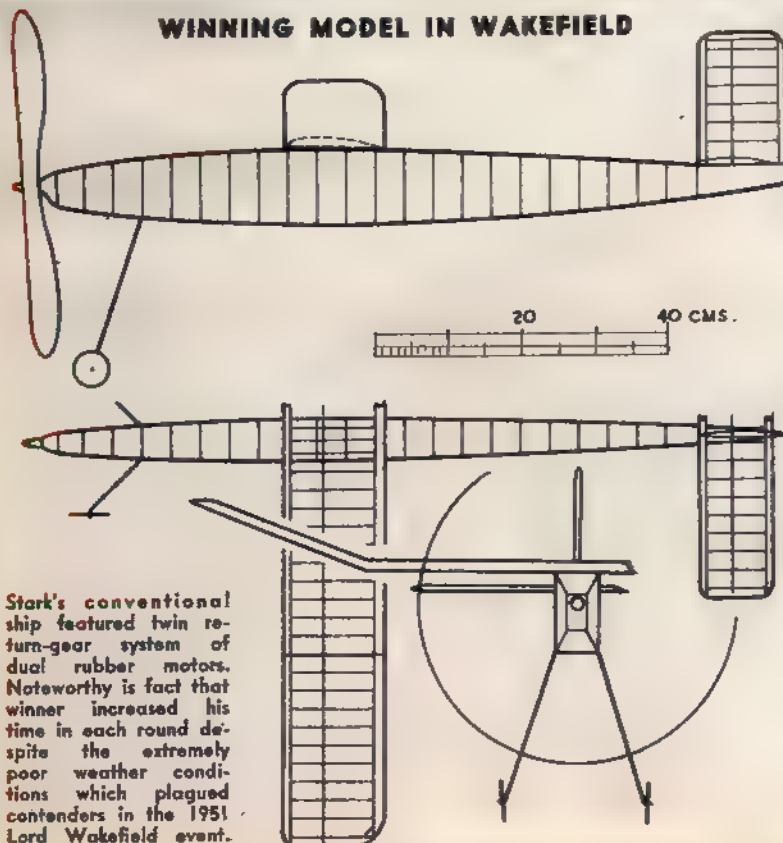
French, and it was evident from the almost complete dearth of questions that he had adequately covered all points concerning the procedure. Experienced timekeepers with "guaranteed" eyesight were available, and everything was ready for the starting signal.

As the scheduled hour of 7 p.m. drew near it was obvious that the weather was going to upset all calculations, for a fair breeze was

blowing up the field toward the high ridge that cuts the Jami-Jarvi field in two, making it certain that long duration flights would be penalized by going out of sight over the ridge.

A half-hour delay was announced, and the honor of first man off in the 1951 Wakefield Contest fell to Joe Foster of the U.S.A., his lanky machine taking the air at 7:35 p.m. The general opinion being that conditions (Continued on page 78)

WINNING MODEL IN WAKEFIELD



Stark's conventional ship featured twin return-gear system of dual rubber motors. Noteworthy is fact that winner increased his time in each round despite the extremely poor weather conditions which plagued contenders in the 1951 Lord Wakefield event.

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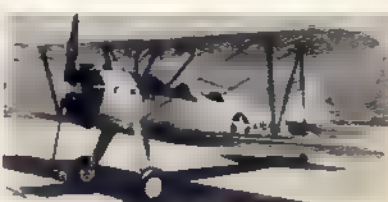
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See
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(AT-1151)

(Continued from page 69)

model. They also covet Beech's Air Force T-34 trainer—which they have already outfitted with armament.

All three of these planes have been tested at Ft. Bragg and other Army centers for use as both personnel carriers and for fighting with rockets, guns and bombs. The Beech T-34 has been thoroughly tested with two .30-caliber machine guns mounted within the wing leading edge, F-51 fashion, and underwing shackles have been installed to carry either six rockets or 150 lb. bombs in any combination desired. The T-34 is highly considered by the high brass for a liaison-type fighter—a Cub-killer, capable of knocking down the enemy's liaisons and small ground support aircraft.

Three factors are a must for this type of plane, and while not yet designed into the T-34 (which the Army does not actually have) they could be at its present stage of development with perhaps the least trouble. First of all a low-level fighting livver should have some armor protection—pieces of .040 inch heat-treated dural plates located around the engine, oil tanks and engine accessories, fuselage bottom, etc., to deflect small arm fire from the ground. It follows that it should also have bullet-proof windshields.

Second, the fuel tanks should be of the leak-resistant type—Nylon with natural rubber cores to slow down seepage and prevent immediate loss of fuel when hit by small arms fire.

Third, and a factor increasingly important for all aircraft used in combat zones—they should have purged fuel tanks. That is, a continuous flow of engine exhaust gas (CO₂, carbon dioxide) should be pumped in the fuel tanks above the fuel to change vapor mixture from an explosive to a non-explosive one when hit with bullets. The Air Force found out too late that most of the planes lost in the last war by fire and combat damage met their doom through explosions in the fuel tanks. After all, the right fuel-air mixture in the fuel tank is just as powerful as it is in the cylinders of the engine.

Several purging systems are now available, the simplest being the engine exhaust gas system (only good for reciprocating engines) as used by the Russians in the last war. The raw exhaust gases are led from the engine through a condenser to remove the water and at the time time cooling it. The gases are then pumped directly into the fuel tank with the residual CO₂ blowing out the fuel tank vent. Gunnery tests have proven conclusively that such tanks cannot be exploded by gun fire. Certainly a low-flying livver fighter should be so equipped.

Dope Can

(Continued from page 57)

field on its final run, the pilot feathered two props (!!!) and turned on his jet engines—brother, what a sight as that big bomber shot upwards in a rapid, graceful climbing turn. Made you glad to know she was on our side!

Paragraph III, Section 2. Lots of discussion on rules ensued as is always expected. Many flyers thought there were too many events which made the meet too long and were in favor of eliminating some provided these weren't their favorites. You get the idea, don't you? Quite a strong showing was made by the free flight advocates of 6-minutes-top-time-in-all-free-flying-events. Arguments seem to be that up to 6 minutes the skill of the flyer in building and adjusting counts considerably, but after 6 minutes any model in a thermal, be it a craftsman's dream or a clunker, is depending entirely upon lady luck for help. Fewer lost models, less time spent hunting the O.O.S.'ers—claim the 6-minute-men.

Some of the stunt crowd was unhappy

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about the single-category status of stunt. They feel that if free flight and speed fly in four classes, so should stunt. It appeared that the majority were agin' them and even the best stunts conceded the point that today a small stunt job can pretty much hold its own against a big baby. The free fliers and speed boys did agree that fewer motor categories in their events would be desirable from the time, money-invested and nerve racking standpoints—but nobody could offer any concrete suggestions that met with universal approval. Various proposals included

Stop free flight at .30; start speed at .30. Free flight to be two classes—Half-A and Above Half-A. Shorter engine runs in free flight; higher power loadings in free flight; combine Jetex and CO₂ and run as one event. "Red Hillgas brought up a good suggestion: everybody fly in any event (let's take free flight for an example) with any size (class) of ship he wants. Each contender flies against the existing National record in his age category.

Thus, at the Nationals under such a system, a Junior could have competed with a Class C-entry and would have been shooting for 30 00.0 (the existing national record). A Senior might have entered a Half-A model in which case he would have been attempting to better 25 05 0, since that was the AMA record at the time of the meet. Red's idea was that you would get points in relationship to your performance compared to the size class and age category record. Al Lewis of "AT" proposed a refinement which would be for the Academy's Contest Board to issue each month a "par for the course" listing of optimum times based on the national records. This would make up for gaps in the record listings or rectify any particularly low or high record times which were the result of "fluke" flights.

Most thinking modelers agree that at local meets there are too many events for the available prizes. Better to com-

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bine if such can be done satisfactorily and give better awards in fewer categories.

The problem of an amateur flyer competing against a "professional" (one who works for a modelplane manufacturer, distributor, dealer, or who sells modelplane plans to magazines) was brought up as it is yearly, but received less attention than ever. Apparently it has been proven to almost everyone's satisfaction that the amateur can hold his own often enough to keep things on an even plane. Also, everyone seemed to be pretty much in accord that the junior flyer of today is quite qualified to compete against the so-called "older experts." A cheer for the Juniors, then.

Ray Matthews, who did such an excellent job at the rules 'n' regulations session, reported one proposal he'd received: require all speed models to complete an inside and outside loop and fly inverted before their speed runs are timed. Wow! We leave you to figure the implications, the complications and the cries of anguish that would arise throughout the land.

An entrant from Northern California brought to light an excellent ruling of the W.A.M. which requires that if a contest sponsor or director combines engine classes in one event, he must do so in other events. In other words, if the Middle Michigan Model Mangles run a meet with all classes of free flight combined, they'd be required (if Michigan were in California and if the MMMM were a member club of the Western Associated Modelers) to combine all classes of speed. Wot's sense for the free flyer gander is sensible for the speed sharks.

Most fun at the Nationals was provided, we believe, by three free flight events—Half-A, PAA-Load and rise-off-water flying. Teter and his team were so right in setting up ROW for a separate day apart from the other F/F events. We got a tremendous charge out of the rev-em-up-let'em-go-wade'em-out-Shake'em-fast-turn'em-over-quick crowd's efforts and we know other spectators did, too. Some ROW entrants using massive single-front floats ran into initial difficulties when their take-offs were perfect, but the high lift generated by the big floats kept their models in continual inside loops. The Mexican team had the most colorful floats (as well as planes). Big eyes and fanciful designs were painted in bright colors on all their pontoons and floats which made for a very bright display.

Big Hand for Home. A wonderful free flight retrieving job was done by the Caravan Mobile Amateur Radio club at the meet. Members cruised in autos which were in constant contact with a Navy transmitter truck stationed at the free flight site. As far-flying models departed aloft from the N.A.S., the Navy men on duty would alert cars of the Caravan club and members who set out in pursuit of the soaring craft. The Navy fell a little short in providing retrieving facilities for fishing models out of the large near-by lake on several occasions. We never could find out what went wrong, but for another Nationals, located near such a large body of water, it would be logical to set up sufficient workable water coverage first.

Further Suggestions. As long as we're on the subject of future Nationals, which, by the way, the Academy-Exchange-Navy officials would like to hold on the West Coast in '52, in the East in '53 and in the Midwest in '54, we'd like to see better provisions made well in advance for contestants' gatherings. Each year the place and time of the annual AMA session and the open Academy Contest Board meeting remain a mystery until almost the last minute, with the result that attendance at each is ridiculously small. And why not on one evening, or on as many evenings as possible, set aside a long length of worktables—prop-

(Continued on page 80)



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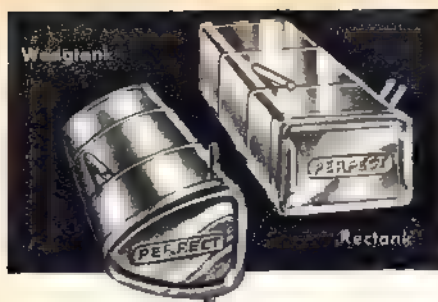
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Wakefield

(Continued from page 71)

would get worse rather than improve, there were no signs of hanging back, and competitors came up to the line in a continuous stream, and in short order times were being announced over the public address system.

Although the ("Red") Everitt type of American model produced an almost phenomenal glide, the wind appeared to upset these ships during the power run, though this was not so apparent in the first round as later in the contest. Both Andrade and Foster secured good times, and even the bottom man in the U. S. team got over the three-minute mark. Dave ("Kansas") Kneeland was employing a modified type of the long fuselage model, while both Hoffmeister and Perryman used twin-return gear jobs.

Twenty-three competitors returned scores of over 3 minutes for the initial round, and in view of the conditions it is surprising to find that the 3:38 aver-

machine meantime staggered for a few seconds, and then commenced to stall badly, but this smoothed out after a short time and it continued to end a good flight, though with a much reduced duration—4:03.4 as against Ellila's 1950 time of 4:31.

The Finnish champion was dogged by ill luck, and in this round repeated his first round feat of barely getting away. The model touched down after a low altitude circle, and though awarded a false start, it bounced off and proceeded to make a long flight, which terminated in the model being lost in the forest in the gathering dark. Though found the next day, it was not recovered in time for the third round, and this completed Ellila's attempt to retain the Trophy.

It was during this round that the Americans began to find trouble, the unstable conditions obviously not suiting the long fuselage models. More than one piled into the deck, in vertical dives, and much repair work was in order. (Manny Andrade did a fine piece of such work, grafting the rear of one fuselage to the front of another, and

DETAILED RESULTS

	Final Place	Name—(Proxy, if any)	1st Round	2nd Round	3rd Round	Total Time
AUSTRALIA	17.	Fullerton, J. (Royle)	151.1	185.0	117.0	453.1
	18.	Lonergan, A. (Bryant)	164.7	169.0	103.0	436.7
	25.	Lim Joon, A. (Santala)	186.0	64.1	146.3	396.4
	30.	Homes, J. (L. Santala)		46.0		46.0
	31.	King, A. (Sandin)	6.0			6.0
BELGIUM	8.	Deschapper, P.	202.2	243.4	164.0	609.6
	16.	Ferber, M.	223.5	127.0	106.3	456.8
	9.	Lippens, C.	157.1	108.3	168.0	433.4
CANADA	22.	Bolosse, E.	118.1	182.0	124.0	424.1
	35.	Wood, J. H. (Melenius)	209.1	105.2		314.3
	45.	Walter, J. (Relander)	151.4	20.0		171.4
FINLAND	49.	Ford, A. (Kauhanen)	61.3			61.3
	34.	Huhtinen, P.	115.0	121.5	85.7	322.2
	37.	Johanson, A.	132.5	126.2	41.0	299.7
	41.	Situnen, T.	108.0	20.8	92.0	220.8
	42.	Tahkapaa, M.	1.0	89.0	105.5	195.5
FRANCE	44.	Kivikataja, A.	99.0	59.3		158.3
	47.	Ellila, A.	130.0	6.9		136.9
	14.	Gill, P.	236.0	137.6	113.5	487.1
	38.	Gerlaud, E.	12.5	140.9	140.6	294.0
	40.	Pontal, B.	218.0	28.8		246.9
GREAT BRITAIN	2.	Tubbs, H.	252.7	236.9	186.6	676.2
	9.	Holland, F.	221.2	190.0	187.4	598.6
	11.	Dowsett, I.	215.9	184.2	166.7	566.8
	20.	Woodhouse, R.	224.0	184.0	22.4	431.4
	32.	Rockwell, F. W.	115.6	136.5	101.2	353.3
HOLLAND	36.	Baxall, F. H.	149.2	143.4	16.0	308.6
	4.	de Jong, J.	258.1	206.0	189.8	653.9
	6.	de Vries, C. R.	194.8	170.3	256.5	621.6
	13.	Dijkstra, G.	119.5	215.1	170.8	505.4
	21.	Dijkstra, A.	197.4	153.8	79.4	430.6
ITALY	24.	Thomas, J. F. (Seton)	122.0	150.0	126.0	398.0
	26.	de Kat, H. L. F.	158.0	236.0	1.5	395.5
	3.	Lustrati, S.	226.0	229.1	209.1	664.2
	10.	Cassola, F.	172.0	236.0	190.2	598.2
	23.	Leardi, A.	192.5	228.3	1.3	422.1
SOUTH AFRICA	27.	Pelegi, G.	177.0	211.7		388.7
	28.	Sadorin, E.	186.3	195.0		381.3
	44.	Faiala, D. (Kannenwort)		183.0		183.0
	43.	Morris, C. (Vierialehto)	37.3	61.0	86.0	184.3
	48.	van Rensburg (Sarrinen)	70.0	46.2		116.2
SWEDEN	1.	Stark, S.	226.2	232.5	246.5	705.2
	30.	Eliasson, H.	122.8	129.5	110.2	362.5
	31.	Borjesson, B.	5.7	217.5	133.5	356.7
	33.	Blomgren, A.	21.0	153.0	164.0	338.0
	5.	Hoffmeister, A.	201.0	223.6	204.8	629.4
UNITED STATES	7.	Andrade, M.	226.0	180.5	208.3	614.8
	12.	Elgin, J.	212.1	192.0	156.0	560.1
	15.	Perryman, G.	208.5	170.0	85.2	463.7
	29.	Foster, J.	211.7	152.6		364.3
	39.	Kneeland, D.	190.3	11.4	70.6	272.3

age of the top twenty men was 33 seconds better than the similar round held in better conditions last year. (1950 top time for Round 1 was 3:58 as against de Jong's 4:18, while the 20th place was only 2:22 as against 3:10.)

With no break, and with all wishing to get on with the contest and beat the weather, Round 2 proceeded immediately. Since conditions were anticipated to worsen, and the light was obviously going, little time was wasted by anyone who thought he had a chance, and again the flights were rapid.

Probably the most unusual sight yet witnessed in a major contest was the occasion when the machines of Frank Holland (G.B.) and Deschapper (Belgium) collided in mid-air. Contrary to normal, this did not take place on take-off, but after the models had been flying for some time and at a considerable height. With both machines meeting practically head-on, Holland's propeller almost severed the tail of the Belgian ship to send it spinning down in an almost vertical dive. The British

producing a ship that scored a very useful duration.) Hoffmeister and Perryman, using twin-gear machines, improved in the list, and Elgin, flying a more orthodox type of model, remained steadily in 11th place.

A report received toward the close of this round indicated that conditions were due to get worse, and high winds and rain were promised by 8 a.m. the following morning. Knowing the accuracy of Jami-Jarvi forecasts, the Jury decided to advance the starting time of Round 3 by two hours, and competitors were warned to be on hand for a start at 3 a.m., the round to close at 4:30 a.m.

A somewhat subdued assembly gathered at the field by 3 a.m. and one could not call the proceedings exactly hilarious. With interest centered on the few top men, it was difficult to know just which tactics would pay dividends. Though the light was quite good, it would obviously improve as the time advanced, with consequent better chances of the model being kept in sight for longer periods. Against this

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was the threat of poorer conditions, and it was therefore no surprise to find most competitors anxious to conclude their flying in good time.

We did not have long to wait, for Sune Stark (Sweden) had also decided that the earlier the better, and with a fine flight of 4:06.5 came up to top place.

Average times for the final round were, as was to be expected, lower (by some 34 seconds) and only nine competitors were successful in bettering the 3-minute mark. However, in view of the fairly considerable drift encountered this year, the standard of flying was excellent in the case of most competitors, though we have yet to realize the "three maximum" contest we are so regularly threatened with by the armchair experts.

It is interesting to note that the Wakefield Contest has now been won by the twin-return gear system for three years in succession, but I forecast some very interesting developments during the next twelve months now that the potentialities of the "Everitt" type model have been demonstrated. In fact, the phrase "What we want is longer and lighter fuselages!" became a password at Jami-Jarvi, though as Andrade said, "having been ribbed by experts" they weren't worried. (Best joke of the day was perpetrated by Paul Deschepper, who spent many night hours producing an enormously long fuselage fitted up with wing and tail from a normal Wakefield, the job being at least 8 feet long!)

And so ended another Wakefield event, and the name of Sweden is added to the long list of British and American winners and the double entry of Finland and that of France on this premier and well respected Trophy donated so many years ago by Lord Wakefield. Could he have witnessed the fine spirit of sportsmanship and international friendliness engendered by the Trophy that bears his name, he would have felt his action in creating this world-wide contest was amply rewarded.

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Dope Can

(Continued from page 74)

erly policed—where the R/C entrants (let us say) could line up their models so all the other flyers could have a chance to see them, ask questions of the owners and generally shoot the breeze regarding radio control? Same for flying scale. Maybe some other types. A big feature of the Nationals for any entrant is the chance to see what the other fellow is doing; the meet's become so big and so lengthy, that's almost impossible. So why not some "live" displays of models and modelers?

Short Sights. As you probably know well by now the Nationals were hot. Temperatures during the meet ranged between 95 and 100 degrees generally. Immediately after the end of the contest, the thermometer shot up to 105 and stayed there for darn near two weeks. So maybe it might be said the meet was a good one but not nearly as hot as it might have been. The Plymouth dealers around Dallas cooperated wonderfully with the Nats officials and provided some slick new Plymouth Suburbans for the use of meet brass. Big talk among event leaders and flyers about how popular Half-A flying scale could be in another year. Sounds good to us providing the competition is judged on a common sense basis. 'Nuff said on that score. We noted fewer trailers this year; seems as if more Plymouth Suburbans and all types of station wagons are being utilized.

Don't Miss SPECIAL CHRISTMAS "SHOWCASE" in December issue

A big hand went to the folks handling registration; the entrants breezed through. Just shows what sound planning and reliable personnel can accomplish. Byron Buzbee sounds like the name of the composer of "The Bumblebee." Doesn't it? Well, 'tain't. He's an old-time (well, not too old) contest director and meet promoter from Corpus Christi; where do you think he is now? Right in Grand Prairie and right next door to where the Nats were. B. B. is the publisher of the G.P. "Texan." Sure good to run into an ex-contest director who has made good instead of gone crazy.

Another popular guy around the meet was Dallas Sherman who supervises the Pan American World Airways' operation from Alaska to Australia. He won't admit it, of course, but he is a very big wheel in Pan-Am. You'd never know it to see him with a nose stuck in a model engine or to see him in a heated discussion over the value of downthrust with a 10-year-old free fighter.

Frank Ehling had an undersize PAA-Load dummy and a very slightly undersize compartment. Frank didn't know it, but everybody else at the meet did. Seems Frank had to shift the occupant to balance a PAA-Load job and the fuselage was narrower at the new location for the "pilot." Out test hopping. Frank had shaved the Little Shaver's sides slightly to get him in the new position, then forgot to enlarge the fuselage slightly at the new spot to accommodate a standard size "Junior PAA-Load." Frank says 300 people must have twitted him about it; he guesses he'll never live it down. Secret: Frank doesn't mind the twitting at all, he's quite famous for the song canaries he raises (they, twitter, too) along with prize-winning tropical fish and some weird model designs!

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Pages 46-47—H. A. Thomas, U. S. Air Force

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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this November, 1951 index.

Fox Family

(Continued from page 60)

sleeve. Ports in crankshaft and cylinder are much larger than .29 or .35.

PARTS ILLUSTRATED

Fox .35. 1. Crankcase: cast aluminum, 2.23 oz. 2. Glow plug: steel, $\frac{1}{4}$ -32 thread, .08 oz. 3. Glow plug washer: copper, .025" thick. 4. Needle valve assembly: brass body, steel needle .061" dia., .19 oz. 5. Back cover bolts: steel, 4-40 thread, .06 oz. 6. Cylinder liner: Meehanite, .800" bore x $1\frac{1}{2}$ " long, .61 oz. 7. Piston: Meehanite, .800" dia. x $23/32$ " long, .39 oz. 8. Crankshaft: steel-hardened and ground, .436 dia., 1.13 oz. Drive washer: steel-hardened, $\frac{3}{8}$ " dia., .21 oz. Front washer: steel, $\frac{3}{8}$ " dia., .14 oz. Propeller nut: Steel, $\frac{1}{4}$ -28 thread, .07 oz. 9. Connecting rod: aluminum, $1\frac{1}{4}$ " long, .08 oz. 10. Wrist pin: steel-brass pads, .155" dia., .05 oz. 11. Cylinder head bolts: steel, 4-40 thread, .08 oz. 12. Back cover plate: cast aluminum, .31 oz. 13. Cylinder head: cast aluminum, 1 $5/16$ " dia., .41 oz. **Fox .29.** 21. Cylinder liner: Meehanite, .738" bore x $1\frac{1}{2}$ " long, .89 oz. 22. Piston: Meehanite, .738" dia. x $23/32$ " long, .32 oz. 23. Wrist pin: steel-brass pads, .155" dia., .04 oz. 24. Cylinder head: cast aluminum, 1 $5/16$ " dia., .41 oz. **Fox .29R.** 31. Cylinder liner: Meehanite, .738" bore x $1\frac{1}{2}$ " long, .86 oz. 32. Piston: Meehanite, .738" dia. x $11/16$ " long, .30 oz. 33. Crankshaft: steel-hardened and ground, .436" dia., 1.02 oz. 34. Cylinder head: cast aluminum, .42 oz.

Glutton

(Continued from page 41)

curve the same as the plans, do not worry about it; just let it take a natural curve. The spars are tapered from two ribs from the tip to $3/32$ " at the end. Over these spars you bend $1/16$ " square pieces cut to fit snugly between the leading edge and trailing edge. You want to keep the bottom surface flat, so be careful that it does not tend to spring up. An alternate, if you have trouble, is cutting the top section of $1/16$ " sheet balsa. Many prefer this.

Cover stabilizer with Jap tissue and use the same procedure as on wing for doping. The rudder is glued between the two center ribs of the stabilizer. We used the popular salt-peter covered-string method of dethermalizer.

The art of test flying is a highly controversial subject. Here is how I adjusted the original Glutton.

First, try a few hand glides. Gently throw the model into the wind. Mine had a definite stalling tendency; a definite stalling tendency is when the model tends to swoop way up and then nose down abruptly. I put a piece of $\frac{1}{8}$ " balsa under the leading edge of the stabilizer. This seemed to smooth it out enough for a test hop. If your model tends to nose down too sharply in hand glides, add a little incidence in the wing; however, it is doubtful that you will experience this trouble.

I started the engine and adjusted it to as rich a mixture as possible. When the gas level dropped almost to the bottom of the eye dropper, I let it go. It circled very tightly to the right under power, almost on the verge of coming in. In the glide it still had a tendency to stall. I turned the rudder tab to the left about an eighth of an inch to widen out the turn. As to correcting the stall, I tilted the right side of the stabilizer tip down, looking from the prop.

On the next flight I again ran the engine rich; it climbed very nicely and went into a real floating glide when the engine quit. That was enough adjustment for me. The next flight, the motor was really singing.

If your model has a natural tendency to fly to the left, don't try to force it to fly right. Just reverse the procedure I used on my model and let it go to the left. One direction is as good as another so long as it goes up.

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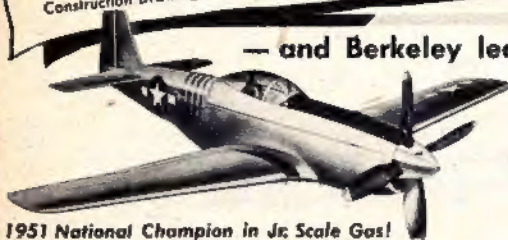
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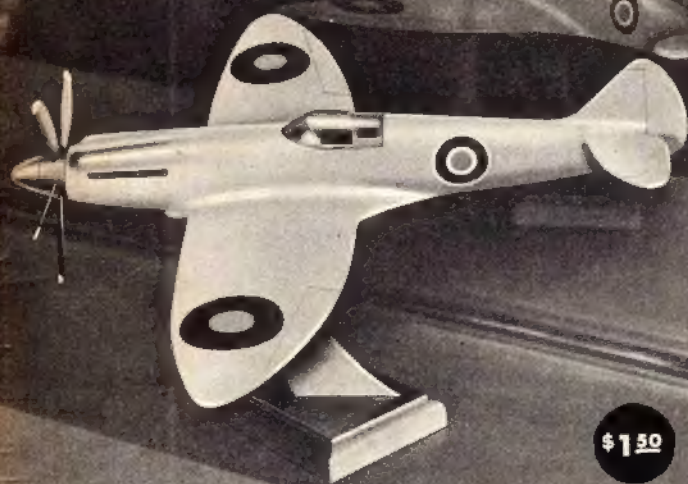
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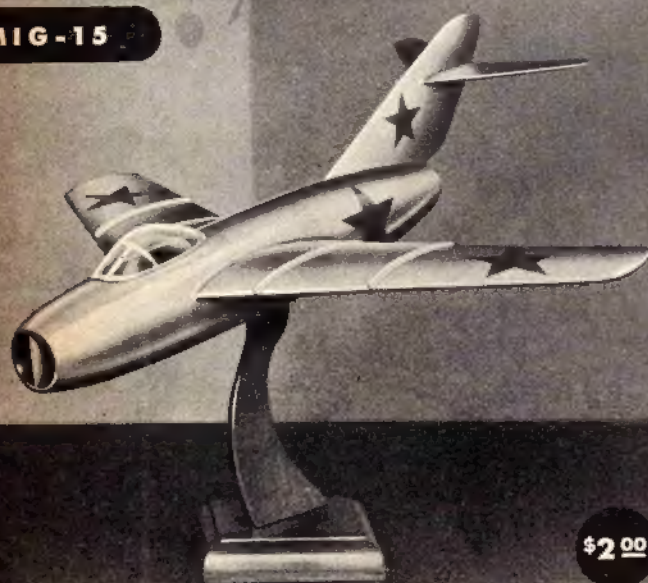
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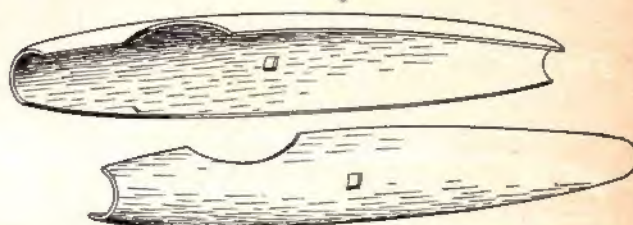
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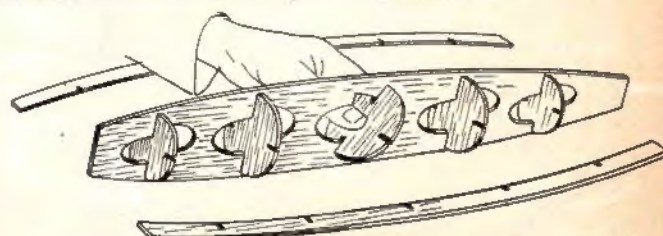
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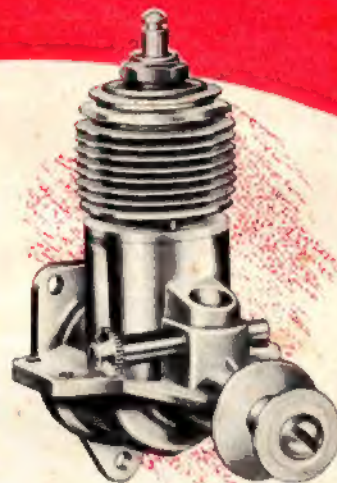
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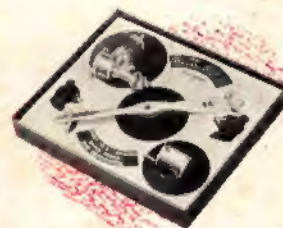
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